S/035/60/000/006/031/038
A001/A001

Translation from: Referativnyy zhurnal, Astronomiya i Geodeziya, 1960, No. 6, p. 95, # 5569

AUTHOR: Rivkind, M. Ya.

TITLE: On the Problem of the Accuracy of Representation of Graphic Surfaces

PERIODICAL: Tr. Irkutskogo gornometallurgich. in-ta, 1958, No. 13, pp. 286-303

TEXT: The author investigated the dependence of the number of necessary reference points on the invariants of a surface and the prescribed magnitude of the permissible error in the representation of the surface on a plane. A restriction is made that the reference points are arranged in the form of a system of equilateral triangles. The author calculates the length of the side of the network triangles for various cases, elucidates the probability of arising the largest error, determines the number of reference points per 1 dm^2 of the map on the 1:500 scale, and cites the formula for their calculation per one area unit. Extending the method to the case of a topographic surface, the

Card 1/2

S/035/60/000/006/031/038
A001/A001

On the Problem of the Accuracy of Representation of Graphic Surfaces

author takes into account the scale of a survey, the characteristics of surface invariants, the permissible error in determining the coordinates of intermediate points, the area occupied by the invariant lines and platforms, the survey area, etc. The results are presented of calculating the average necessary number of reference points per an area unit of a map on the 1:25,000 scale.

S. A. Nikolayev

Translator's note: This is the full translation of the original Russian abstract.

VB

Card 2/2

RIVKIND, M. Ya., Cand Tech Sci (diss) -- "The problem of the precision of representations of graphic surfaces". Irkutsk, 1959. 16 pp (Min Higher and Inter Spec Educ RSFSR, Irkutsk Mining and Metallurgical Inst), 150 copies (KL, No 15, 1960, 136)

MILYAVSKIY, Il'ya Osipovich, kandidat sel'skokhozyaystvennykh nauk; RIVKIND, T., redaktor; TULIN, N., redaktor; ZUBRILINA, Z.P., tekhnicheskiy redaktor

[T.S.Mal'tsev, collective farmer and scientist] Kolkhoznik-uchenyi T.S.Mal'tsev. Izd. 4-oe, dop. Moskva, Gos. izd-vo selkhoz.lit-ry, 1956. 143 p. (MLRA 10:1)
(Mal'tsev, Terentii Semenovich, 1895-)

VOLOSKOV, Petr Alekseyevich, prof., doktor biolog.nauk; RIVKIND, T.D., red.; ATROSHCHENKO, L.Ye., tekhn.red.

[Possibilities for increasing the number of cattle] Rezervy uvelicheniia pogolov'ia krupnogo rogatogo skota. Moskva, Izd-vo "Znanie," 1959. 31 p. (Vsesoiuznoe obshchestvo po rasprostraneniiu politicheskikh i nauchnykh znanii. Ser.5, Sel'skoe khoziaistvo, no.21) (MIRA 12:8)
(Cattle)

RIVKIND, T. L.

USSR/Medicine - Tumors Apr 48
Medicine - Antigens and Antibodies

"Specific Antigen of Malignant Tumor Cells," L. A. Zil'ber, N. V. Martsissov, T. L. Rivkind, E. L. Baydakova, Zil'ber's Lab, Acad Med Sci USSR, Cen Inst Epidemiol and Microbiol and Prof Tovarnitskiy's Lab, Inst of Virology, Acad Med Sci USSR), 3½ pp

"Vest Ak Med Nauk SSSR" No 3

No previous attempt in isolating specific antigens from malignant tumor cells has produced convincing results. Authors describe own method, whereby an antigen of the nucleoproteid type, absent in normal tissue, was isolated from malignant tumor tissues of rats.

PA 18/49T63

ASATIANI, Vladimir Samsonovich; RIVKIND, T.L., red.; ATROSHCHENKO, L.Ye., tekhn.red.

[Biological catalysts] Biologicheskie katalizatory. Moskva, Izd-vo "Znanie," 1959. 31 p. (Vsesoiuznoe obshchestvo po rasprostraneniiu politicheskikh i nauchnykh znanii. Ser.8. Biologiia i meditsina, no.15) (MIRA 12:8)

1. Chlen-korrespondent Akademii nauk Gruzinskoy SSR (for Asatiani).

(Enzymes)

FIVRIND, T. I.

"Root system of Cultural Plants at different methods of treating podzolic virgin soils"

Pochvovedeniye, No. 12, 1946.

CHIRIKOV, Fedor Vasil'yevich, professor, doktor sel'skokhozyaystvennykh nauk; RIVKIND, T.L., redaktor; SOKOLOVA, N.N., tekhnicheskiy redaktor

[Agricultural chemistry of potassium and phosphorus] Agrokhimiia kaliia i fosfora. Moskva, Gos. izd-vo selkhoz. lit-ry, 1956. 463 p.
(Potassium)
(Phosphates)
(MLRA 9:11)

MURATOV, Dmitriy Grigor'yevich, kand. sel'skokhozyaystvennykh nauk,; RIVKIND, T.L., red.; STAROSTENKOVA, M.M., red. izd-va,; BERLOV, A.P., tekhn.red.

[Management of the "Komintern" Collective Farm, Mogilev District, White Russia] Opyt vedeniia khoziaistva v kolkhoze "Komintern" (Mogilevskii r-n BSSR). Moskva, Izd-vo "Znanie," 1958. 31 p. (Vsesoyuznoe obshchestvo po rasprostraneniiu politicheskikh i nauchnykh znanii. Ser. 5, no. 29). (MIRA 11:12)
(Mogilev District--Collective farms)

BERZIN', Ivan Andreyevich [Bērziņš, J.], prof.; RIVKIND, T.L., red.; ATROSHCHENKO, L.Ye., tekhn.red.

[Achievements of livestock raisers of the Latvian S.S.R.] Uspekhi zhivotnovodov Latviiskoi SSR. Moskva, Izd-vo "Znanie," 1959. 22 p. (Vsesoiuznoe obshchestvo po rasprostraneniiu politicheskikh i nauchnykh znanii. Ser.5, Sel'skoe khoziaistvo, no.27). (MIRA 12:9)

(Latvia--Stock and stockbreeding)

PETROV, Valentin Pavlovich, starshiy inzhener; BUTKEVICH, Boris Georgiyevich, nauchnyy sotrudnik; RIVKIND, T.L., red.; ATROSHCHENKO, L.Ye., tekhn.red.

[Over-all mechanization in corn growing; work experience of N.F.Manukovskii, tractor operator on Kirov Collective Farm in Novaya Usman' District, Voronezh Province] Kompleksnaia mekhanizatsiia vozdelyvaniia kukuruzy; opyt raboty traktorista kolkhoza imeni Kirova Novo-Usmanskogo raiona Voronezhskoi oblasti N.F.Manukovskogo. Moskva, Izd-vo "Znanie," 1959. 30 p. (Vsesoiuznoe obshchestvo po rasprostraneniiu politicheskikh i nauchnykh znanii. Ser.5, Sel'skoe khoziaistvo, no.22) (12:9)

1. Voronezhskoye oblastnoye upravleniye sel'skogo khozyaystva (for Petrov). 2. Filial no TsChZ Vsesoyuznogo nauchno-issledovatel'skogo instituta ekonomiki sel'skogo khozyaystva (for Butkevich).
(Novaya Usman' District--Corn (Maize))

LISENKOV, Aleksandr Petrovich; RIVKIND, T.L., red.; SAVCHENKO, Ye.V., tekhn.red.

[Groat crops] Krupianye kul'tury. Moskva, Izd-vo "Znanie," 1961. 46 p. (Vsesoiuznoe obshchestvo po rasprostraneniiu politicheskikh i nauchnykh znanii. Ser.5, Sel'skoe khoziaistvo, no.1). (MIRA 14:1)
(Millet) (Buckwheat) (Rice)

RIVKIND, V. N.

Some problems in the calculation of wide-flange beams. Trudy LKI no.38:127-134 '62. (MIRA 16:7)

1. Kafedra stroitel'noy mekhaniki korablya Leningradskogo korablestroitel'nogo instituta.
(Beams and girders)

RIVKIND, V.Ya.

Estimates of the rate at which solutions of difference equations converge to solutions of elliptic equations with discontinuous coefficients and a numerical method for solving the Dirichlet problem. Dokl. AN SSSR 149 no.6:1264-1267 Ap '63. (MIRA 16:7)

1. Leningradskiy gosudarstvennyy universitet im. A.A.Zhdanova.
Predstavleno akademikom V.I.Smirnovym.
(Difference equations) (Differential equations)
(Boundary value problems)

RIVKIND, V. Ya.

Approximate method of solving the Dirichlet problem, and estimates of the rate of convergence of solutions of difference equations to solutions of elliptic equations with discontinuous coefficients. Vest. LGU 19 no.13:37-52 '64 (MIRA 17:8)

L 40311-65 EWT(d) Pg-4 IJP(c)
ACCESSION NR: AP4044456 S/0043/64/000/003/0037/0052

15
B

AUTHOR: Rivkind, V. Ya.

TITLE: A method for approximate solution of the Dirichlet problem and estimates of the speed of convergence of solutions of difference equations to solutions of elliptic equations with discontinuous coefficients

SOURCE: Leningrad. Universitet. Vestnik. Seriya matematiki, mekhaniki i astronomii, no. 3, 1964, 37-52

TOPIC TAGS: numerical analysis, Dirichlet problem, elliptical equation, difference equation, discontinuous coefficient

ABSTRACT: A numerical method is given for solution of the Dirichlet problem for elliptical equations of the second order in arbitrary two-dimensional domain. The domain is completed to a rectangle, and in the latter an elliptical equation with discontinuous coefficients is considered. The estimate for the variation of the original solution from the solution in the rectangle is found. The rate of con-

Card 1/2

L 40311-65

ACCESSION NR: AP4044456

vergence of the difference equations for elliptical equations with discontinuous coefficients is estimated. Orig. art. has: 55 equations.

ASSOCIATION: None

SUBMITTED: 12Feb63 ENCL: 00 SUB CODE: MA

NR REF SOV: 007 OTHER: 000

Card 2/2

LADYZHENSKAYA, O.A.; RIVKIND, V.Ya.; URAL'TSEVA, N.N.

Classical solvability of diffraction problems for elliptic and parabolic equations. Dokl. AN SSSR 158 no.3:513-515 S '64. (MIRA 17:10)

1. Leningradskoye otdeleniye Matematicheskogo instituta im. V.A.Steklova AN SSSR. Predstavleno akademikom V.I.Smirnovym.

L 11460-65 EWT(d) Pg-4 IJP(c)/ASD(a)-5/AFWL/SSD/ESD(dp)/ESD(gs)/ESD(t)

ACCESSION NR: AP4046364 S/0020/64/158/003/0513/0515 B

AUTHORS: Lady*zhenskaya, O. A.; Rivkind, V. Ya.; Ural'tseva, N. N.

TITLE: Classical solvability of diffraction problems for equations of the elliptical and parabolic type 16

SOURCE: AN SSSR. Doklady*, v. 158, no. 3, 1964, 513-515

TOPIC TAGS: diffraction analysis, boundary value problem, elliptic differential equation, parabolic differential equation, existence theorem

ABSTRACT: In an earlier paper, one of the authors (Lady*zhenskaya, DAN, 96, No. 3, 433, 1954) proved that diffraction problems can be reduced to standard boundary and initial-boundary problems, for which various solution methods are available, thereby proving the solvability of diffraction problems. Furthermore, it was pointed out that more accurate to the diffraction problems can be obtained by

Card 1/3

making more precise the formulation of the corresponding boundary and initial-boundary value problems. It was pointed out, however, that the results obtained for elliptic and parabolic equations are quite crude. Following a later development of new methods for the investigation of differential properties of generalized solutions (Lady*zhenskaya and Ural'tseva, Izv. AN SSSR ser. matem. v. 26, No. 1, 5, 1962; UMN, v. 26, No. 1, 19, 1961) which led to more accurate relationships between the differential properties of the generalized solutions of elliptic and parabolic equations and the differential properties of the coefficients of the equation, it has become possible to refine the results for elliptic and parabolic diffraction problems. Two problems of this type are solved by way of an example and several theorems proved concerning the solvability of these problems. This report was presented by V. I. Smirnov. Orig. art. has: 14 formulas.

ASSOCIATION: Leningradskoye otdeleniye Matematicheskogo instituta

L 11460-65
ACCESSION NR: AP4046364

im. V. A. Steklova Akademii nauk SSSR (Leningrad Division, Mathematics Institute, Academy of Sciences SSSR)

SUBMITTED: 15Apr64 ENCL: 00

SUB CODE: MA NR REF SOV: 009 OTHER: 000

Card 3/3

L 16963-63 EWT(d)/FCC(w)/BDS AFFTC/IJP(C)
S/020/63/149/006/003/027

53
52

AUTHOR: Rivkind, V. Ya.

TITLE: Estimating the rate at which solutions of difference equations converge to solutions of elliptic equations with discontinuance coefficients and one numerical method for solving the Dirichlet problem

PERIODICAL: Akademiya nauk SSSR. Doklady. vol. 149, no. 6, 1963, 1264-1267

TEXT: The author solves the Dirichlet problem

$$\Delta u = f(x_1, x_2), \quad u|_{S_1} = 0 \tag{3}$$

for the problem

$$\frac{\partial}{\partial x_1} a' \frac{\partial u^a}{\partial x_1} + \frac{\partial}{\partial x_2} a' \frac{\partial u^a}{\partial x_2} = f'(x_1, x_2),$$

$$a' = \begin{cases} 1, & x \in \Omega_1, \\ a, & x \in \Omega_2; \end{cases} \qquad f' = \begin{cases} f(x_1, x_2), & x \in \Omega_1, \\ 0, & x \in \Omega_2; \end{cases} \tag{1}$$

$$[u^a]_{S_1} = 0, \quad \left[a' \frac{\partial u^a}{\partial n}\right]_{S_1} = 0, \quad u^a|_{S_2} = 0.$$

Card 1/3

L 16963-63

S/020/63/149/006/003/027

Estimating the rate...

where a is constant ($a \gg 1$), S_1 is a sufficiently smooth boundary for an arbitrary region Ω_1, S_2 is the boundary of a rectangle Ω lying in Ω_1, Ω_2 is the region between S_1 and S_2, n is a normal to S_1, and [ ] indicates the jump of a function on a line. He uses the difference scheme

$$(a_h u^a_{hx_1})_{\bar{x}_1} + (a_h u^a_{hx_2})_{\bar{x}_2} = f_h(x_{ij});$$

$$a_h = \begin{cases} 1, & x_{ij} \in \Omega_1, \\ \frac{a+1}{2} & x_{ij} \in S_1, \\ a, & x_{ij} \in \Omega_2; \end{cases} \qquad f_h(x_{ij}) = \frac{1}{h^2} \int_{x_1^i}^{x_1^i+h} \int_{x_2^j}^{x_2^j+h} f'(x_1, x_2)\, dx; \qquad (6)$$

$$u^a_h|_{x_{ij} \in S_2} = 0.$$

where $\Delta x_1 = \Delta x_2 = h$ is the mesh of a grid with coordinates $x_1 = x_1^i$, $x_2 = x_2^i$ and mesh points x_{ij}; $u^a_{hx_1}$, $u^a_{h\bar{x}_1}$, $u^a_{hx_2}$, $u^a_{h\bar{x}_2}$ the difference relations for the grid function u^a_h sought. Problem (3) is solved for an arbitrary region by means of an estimate

Card 2/3

L 16963-63

S/020/63/149/006/003/027

Estimating the rate...

for the rate at which $u^a(x)$ converges to $u(x)$ as $a \to \infty$.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet im. A.A. Zhdanov (Leningrad State University im. A.A. Zhdanov)

SUBMITTED: November 9, 1962

Card 3/3

RIVKIND, Ya., inzhener.

Planning and construction of a dry ice plant. Khol.tekh. 13 no.3:20-25 Jl-S '53. (MLRA 6:11)
(Dry ice) (Refrigeration and refrigerating machinery)

RIVKIND, Ya.I. (Grodno)

Mathematical analysis club in the Grodno Pedagogical Institute.
Mat.pros. no.6:267-280 '61. (MIRA 15:3)
(Grodno--Mathematics--Study and teaching)

DEZENT, G.M., starshiy tekhnolog; RIVKIND, Ya.I.; KORKIN, P.A.

Worthy welcome to the 22d Congress of the CPSU. Khol. tekh. 38 no.5:22-30 S-O '61. (MIRA 15:1)

1. Glavnyy inzhener Moskovskogo kholodil'nika No.7 (for Rivkind).
2. Direktor Leningradskogo khladokombinata (for Korkin).
(Cold storage)

RIVKIND, YAkov Iosifovich; VEREVKINA, N.M., red.; MORGUNOVA, G.M., tekhn. red.

[Three hundred problems in mathematical analysis]300 zadach po matematicheskomu analizu. Minsk, Izd-vo M-va vysshego, srednego spetsial'nogo i professional'nogo obrazovaniia BSSR, 1962. 64 p. (MIRA 15:11)
(Mathematical analysis—Problems, exercises, etc.)

RIVKIND, Yakov Iosifovich; VEREVKINA, [illegible] M., red.; MORGUNOVA, G.M., tekhn. red.

[Three hundred problems in mathematical analysis]300 zadach po matematicheskomu analizu. Minsk, Izd-vo M-va vysshego, srednego spetsial'nogo i professional'nogo obrazovaniia BSSR, 1962. 64 p. (MIRA 15:9)
(Mathematical analysis--Problems, exercises, etc.)

RIVKIND, Ya. I. CAND PHYSICOMATH SCI.

Dissertation: "Certain Application of the Theory of Stuctures to the Functions of Manifolds and Dynamic Systems."

28 June 49
Sci Res Inst of Mathematics, Moscow Order of Lenin State V imeni M. V. Lomonosov.

SO Vecherpaya Moskva
Sum 71

RIVKIND, YA. I.

3

1-FW

Rivkind, Ya. I. Limit theorem of probability theory on compact topological groups. Grodnenskiĭ Gos. Ped. Inst. Uč. Zap. 1 (1955), 51–58. (Russian)

It is well-known that, if n independent random real variables all have the same absolutely continuous distribution, then as $n\to\infty$ the distribution of the fractional part of their sum tends to the uniform distribution over $[0, 1)$. The author obtains a result of this type in a much more general setting. Let Ω be a connected compact topological group. Let $\mu(E)$ be the normalized (two-sidedly) invariant measure on Ω and $P(E)$ be a probability measure on Ω. Let $x_1, x_2, \cdots$ be independent randomly variable elements in Ω all having the distribution determined by $P(E)$. The distribution of the product $x_1x_2\cdots x_n$ is determined by $P^{(n)}(E)$, where

$$P^{(k)}(E)=\int_\Omega P^{(k-1)}(Ex^{-1})P(dE_x)\ (k=1, 2, \cdots)$$

and $P^{(1)}(E)=P(E)$. Supposing $P(E)$ to be of the form $\int_E p(x)\mu(dE_x)$, with $p(x)$ in the Lebesgue class L_Ω^2, the author shows that $P^{(n)}(E)\to\mu(E)$ as $n\to\infty$. His proof employs a generalized characteristic function.

H. P. Mulholland (Birmingham).

RIVKIS, I.

Increasing the effective distance of underground cables in transmitting radio broadcasts. Radio no.7:18-20 Jl '55.
(Electric cables) (MLRA 8:10)

USSR/Electricity - Cables

Card 1/1 : Pub. 89 - 12/26

Authors : Rivkis, I.

Title : Underground cable lines

Periodical : Radio 12, 21-23, Dec 1954

Abstract : Polyvinyl chloride insulated two-conductor cables, used in the USSR for underground installations; namely, copper-conductor cables and aluminum conductor cables, are described. Curves are plotted showing the attenuation and the voltage drop as a function of the input-resistance frequency in short-distance subscriber lines and long-distance feeder lines. The parameters of both copper and aluminum conductor lines, for various conductor wire diameters and various frequencies, are featured in special tables. A method for extending the length of a feeder line to 20 km without impairing the quality of its operation is explained. Drawing; graphs; tables; diagram.

Institution : .....

Submitted : .....

RIVKIS, I.

USSR/ Electronics - Radiofication

Card 1/1 Pub. 89 - 7/21

Authors : Rivkis, I.

Title : Increase in the effective range of underground radiofication cable lines

Periodical : Radio 7, 18 - 20, Jul 1955

Abstract : Report, presented as an aid to radiofication workers, offers expert advice on how to increase the effective range of sub-terranean radio cables and how to increase the wave resistance of coil-loaded cables. The order of planning long-distance coil-loaded radio cables (distances from 12 to 20 km) is analyzed. The two types of coils used in coil-loaded radiofication feeder lines are described. Tables; diagrams; drawings.

Institution : .....

Submitted : .....

NYURENBERG, Vladimir Arkad'yevich; RIVKIS, I.G., otv. red.; TSEYTLIN, F.G., red.

[Fundamentals of wire broadcasting] Osnovy tekhniki provodnogo veshchaniia. Moskva, Sviaz', 1964. 86 p. (MIRA 17:11)

RIVKIS, I.T., inzh.

Electrical characteristics of municipal three-program wire broadcasting networks. Vest. svyazi 24 no.5:10-12 My '64. (MIRA 17:6)

PALENKO, I., kand.geograf.nauk; RIVLIN, A., zhurnalist; OSIPOV, K., zhurnalist; OVECHKINA, L.S., red.

[Blagoveshchensk is 100 years old] Blagoveshchensku 100 let. Blagoveshchensk, Amurskoe knizhnoe izd-vo, 1958. 53 p.
(Blagoveshchensk--Description) (MIRA 12:2)

KHEYFETS, V.L.; RIVLIN, I.Ya.

Relation of oxygen overvoltage on platinum to the concentration of sulfuric acid. Zhur.prikl.khim. 28 no.12:1291-1297 D '55.
(MLRA 9:3)

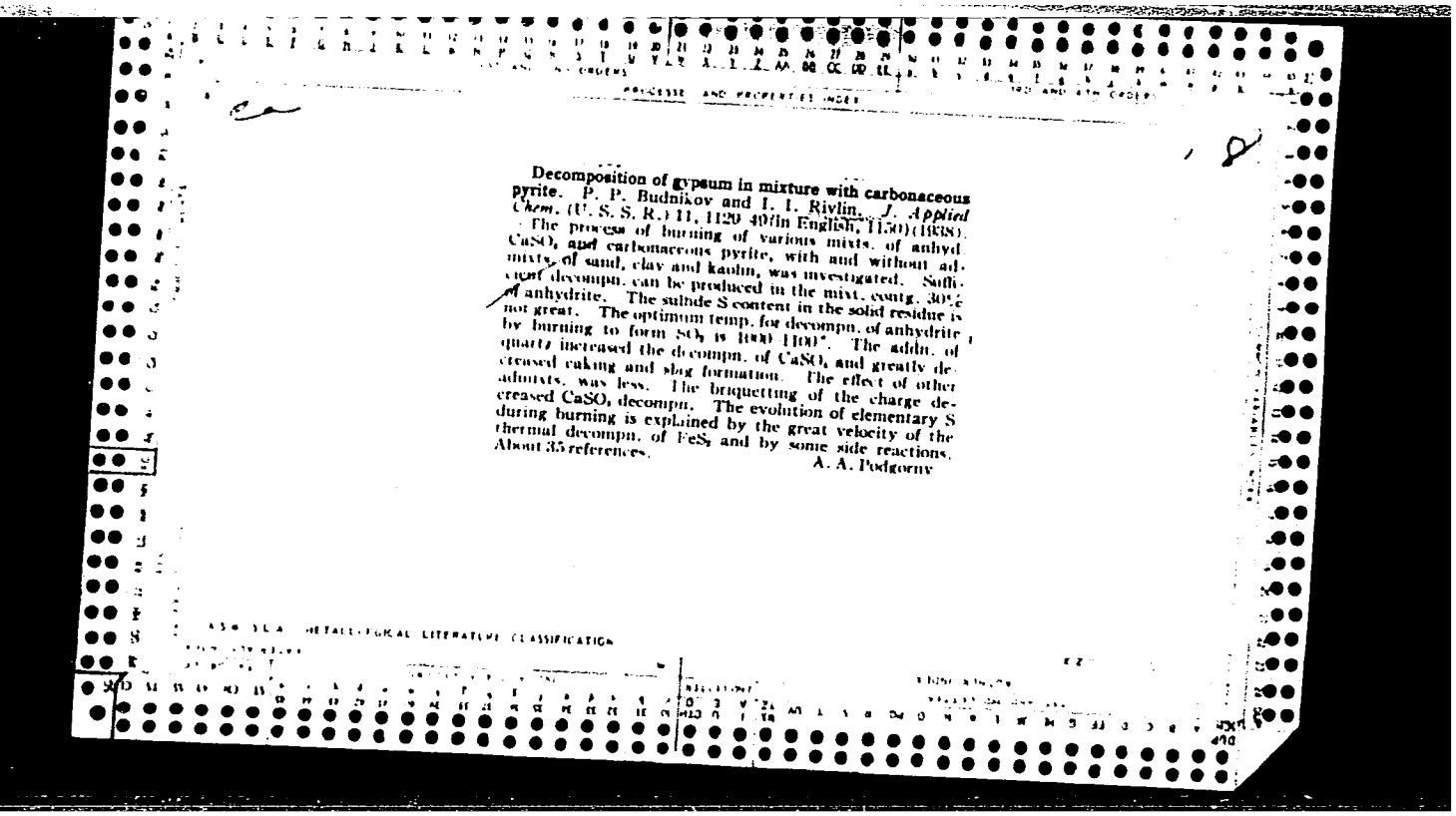
(Oxygen) (Overvoltage)

KIVLIN, I. I.

"Extraction of Aluminium Oxide from Kaolin by the Action of Sulphur Dioxide," Dok. AN, 37, No. 3, 1942;

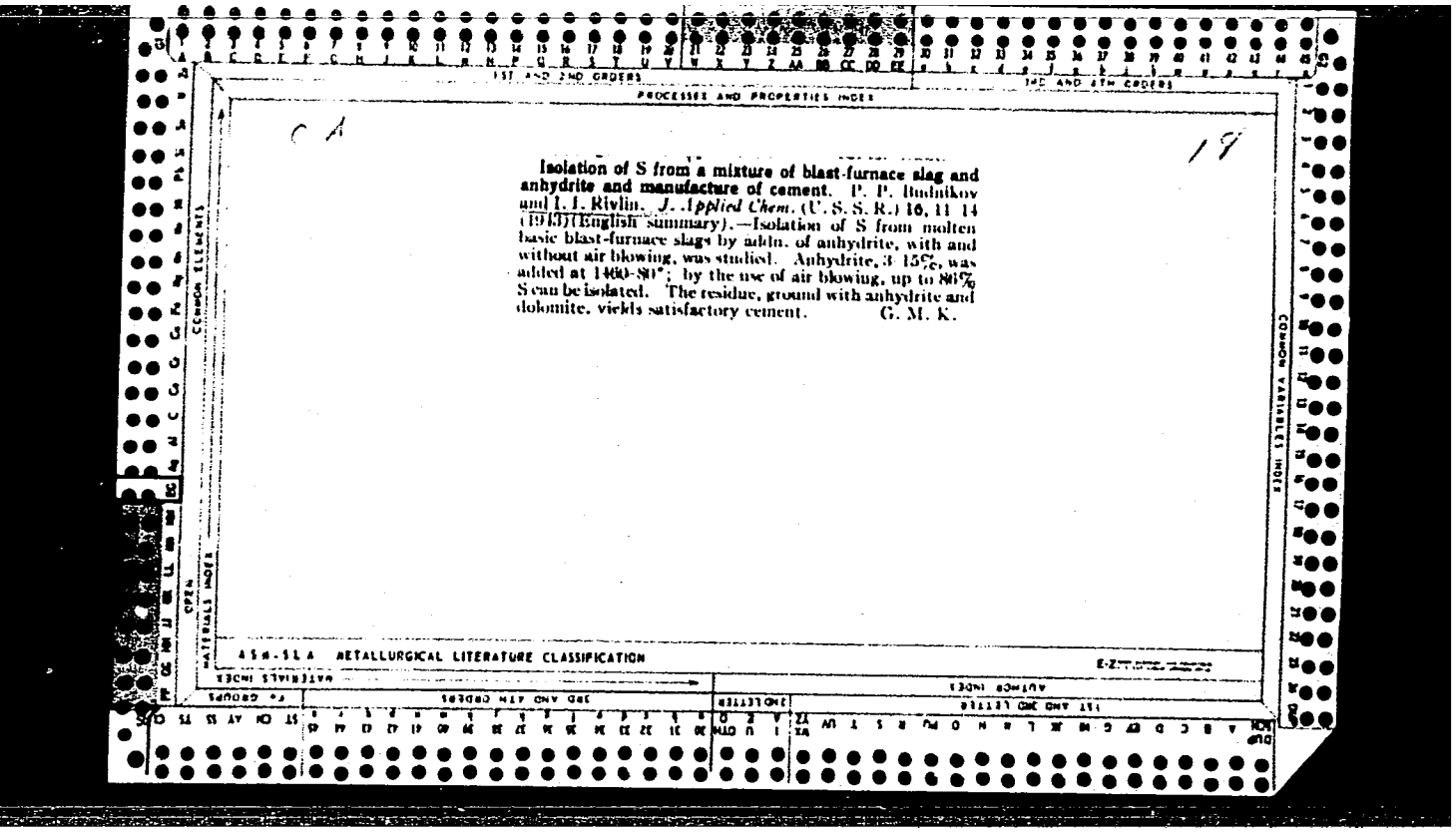
"Production of Magnesium Oxide from Dolomite and Its Use in the Manufacture of Refractories," ibid., 41, No. 5, 1943

Mbr., Ukr. Acad. Sci., -1943-.



Decomposition of gypsum in mixture with carbonaceous pyrite. P. P. Budnikov and I. I. Rivlin. *J. Applied Chem.* (U. S. S. R.) 11, 1129-40(In English, 1150)(1938). The process of burning of various mixts. of anhyd. $CaSO_4$ and carbonaceous pyrite, with and without admixts. of sand, clay and kaolin, was investigated. Sufficient decompn. can be produced in the mixt. contg. 30% of anhydrite. The sulfide S content in the solid residue is not great. The optimum temp. for decompn. of anhydrite by burning to form SO_2 is 1000-1100°. The addn. of quartz increased the decompn. of $CaSO_4$ and greatly decreased caking and slag formation. The effect of other admixts. was less. The briquetting of the charge decreased $CaSO_4$ decompn. The evolution of elementary S during burning is explained by the great velocity of the thermal decompn. of FeS_2 and by some side reactions. About 35 references.

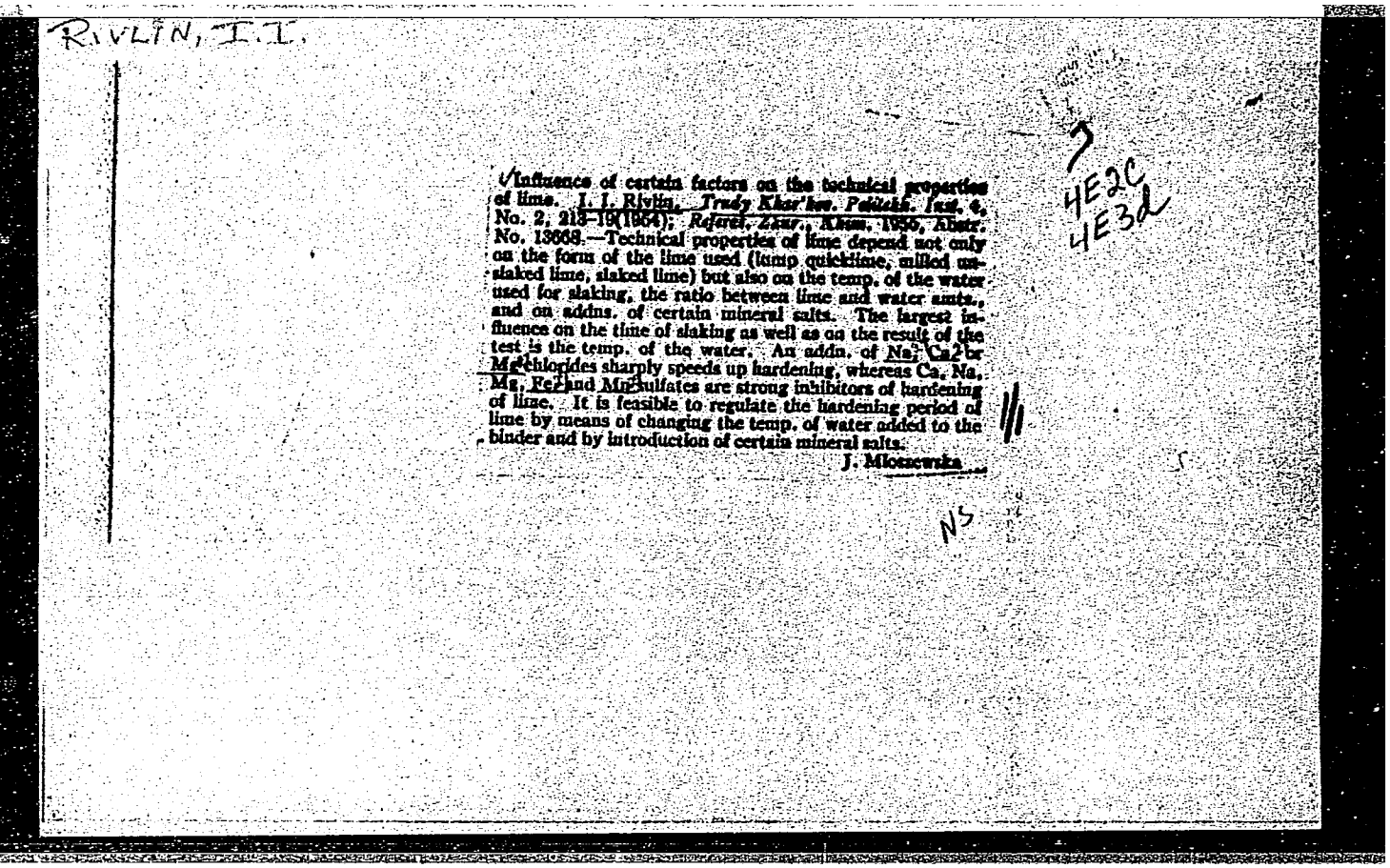
A. A. Podgorny



C A

19

Isolation of S from a mixture of blast-furnace slag and anhydrite and manufacture of cement. P. P. Budnikov and I. I. Rivlin. *J. Applied Chem.* (U. S. S. R.) 16, 11 14 (1943) (English summary).—Isolation of S from molten basic blast-furnace slags by addn. of anhydrite, with and without air blowing, was studied. Anhydrite, 3–15%, was added at 1460–80°; by the use of air blowing, up to 86% S can be isolated. The residue, ground with anhydrite and dolomite, yields satisfactory cement. G. M. K.



RIVLIN, I.I.

Influence of certain factors on the technical properties of lime. I. I. Rivlin. *Trudy Khar'kov. Politekh. Inst.* 4, No. 2, 213–19(1954); *Referat. Zhur., Khim.* 1956, Abstr. No. 13668.—Technical properties of lime depend not only on the form of the lime used (lump quicklime, milled unslaked lime, slaked lime) but also on the temp. of the water used for slaking, the ratio between lime and water amts., and on addns. of certain mineral salts. The largest influence on the time of slaking as well as on the result of the test is the temp. of the water. An addn. of Na^+, Ca^{2+} or Mg^{2+} chlorides sharply speeds up hardening, whereas Ca, Na, Mg, Fe^{2+} and Mn^{2+} sulfates are strong inhibitors of hardening of lime. It is feasible to regulate the hardening period of lime by means of changing the temp. of water added to the binder and by introduction of certain mineral salts.

J. Mlosewska

4E2C
4E3d

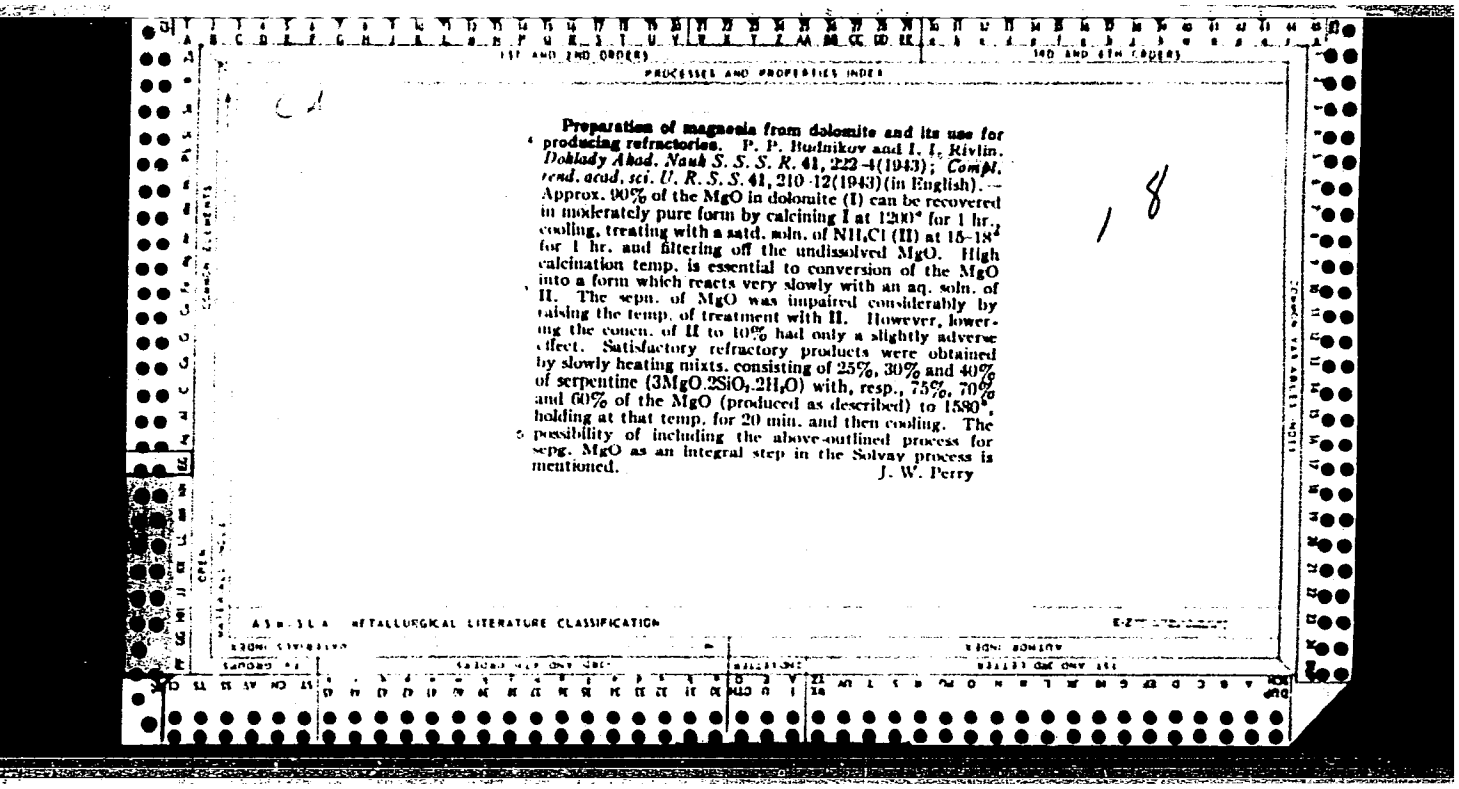
NS

RIVLIN, I. I.

Budnikov, P. P., and Rivlin, I. I. PREPARATION OF MAGNESIA FROM DOLOMITE AND ITS USE FOR PRODUCING REFRACTORIES. *Doklady Akad. Nauk S.S.S.R.*, 41, 222-24 (1943); *Compt. rend. acad. sci. U.R.S.S.*, 41, 310-12 (1943) (in English). —Approximately 90% of the MgO in dolomite (I) can be recovered in moderately pure form by calcining I at 1,150° for 1 hr., cooling, treating with a saturated solution of NH_4Cl (II) at 15 to 18° for 1 hr. and filtering off the undissolved MgO. High calcination temperature of treatment with II is given. However, lowering the concentration of II to 10% had only a slightly adverse effect. Satisfactory refractory products were obtained by slowly heating mixtures consisting of 25, 30, and 40% of serpentine ($3MgO \cdot 2SiO_2 \cdot 2H_2O$) with, respectively, 75, 70, and 60% of the MgO (produced as described) to 1,600°, holding at that temperature for 20 minutes and then cooling. The possibility of excluding the above-outlined [illegible] operating MgO as an intermediate step in the [illegible] process is mentioned.

RIVLIN, I. I.

Budnikov, P. P., and Rivlin, I. I. MAGNESIUM OXIDE FROM DOLOMITE AND ITS USE IN THE MANUFACTURE OF HIGHLY REFRACTORY PRODUCTS. *Trudy Kharkov. Khim.-Tekhnol. Inst. im. S. M. Kirova*, 3, 154-62 (1941). — Several French patents dealing with the separation of magnesium oxide from dolomite fired at 900° were tested. The optimum temperature for firing dolomite and the temperature of its treatment with ammonium chloride were determined. Samples of refractory forsterite material were obtained from a mixture of concentrated dolomite and serpentine. Petrographic study showed that the samples contained small grains of forsterite and periclase.

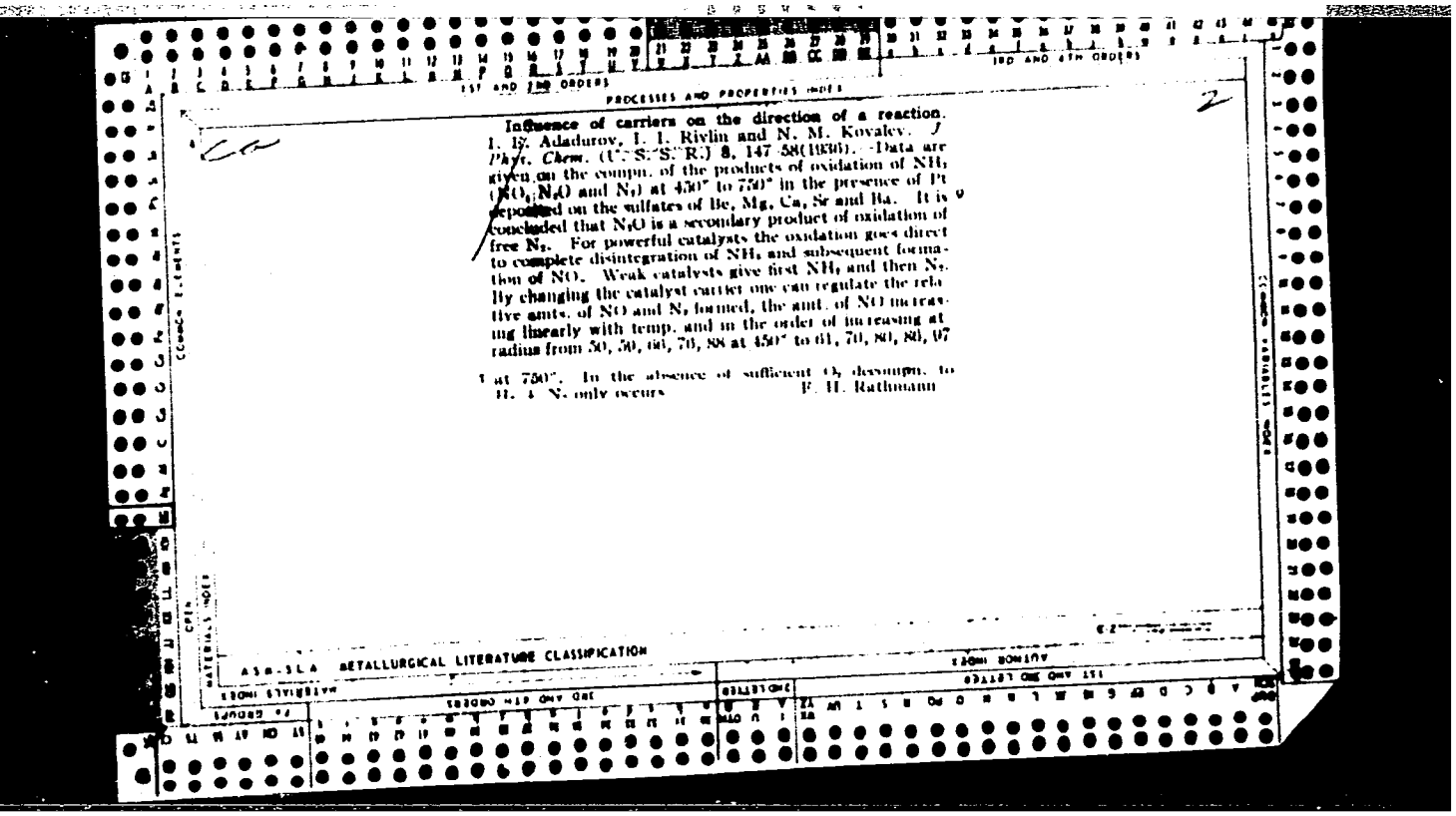


PROCESSES AND PROPERTIES INDEX

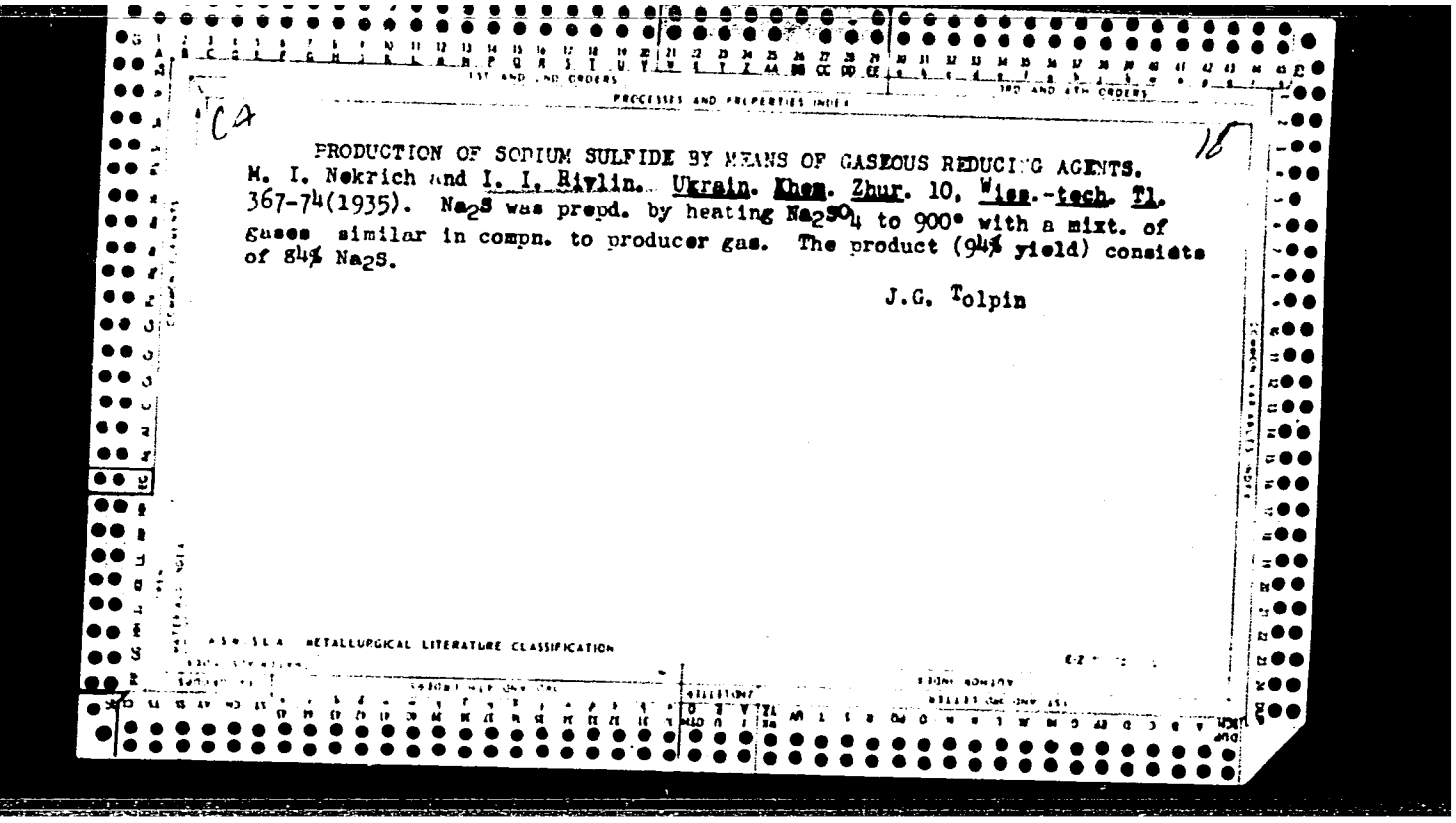
Preparation of magnesia from dolomite and its use for producing refractories. P. P. Budnikov and I. I. Rivlin. *Doklady Akad. Nauk S. S. S. R.* 41, 222–4(1943); *Compt. rend. acad. sci. U. R. S. S.* 41, 210–12(1943)(in English).— Approx. 90% of the MgO in dolomite (I) can be recovered in moderately pure form by calcining I at 1200° for 1 hr., cooling, treating with a satd. soln. of NH_4Cl (II) at 15–18° for 1 hr. and filtering off the undissolved MgO. High calcination temp. is essential to conversion of the MgO into a form which reacts very slowly with an aq. soln. of II. The sepn. of MgO was impaired considerably by raising the temp. of treatment with II. However, lowering the concn. of II to 10% had only a slightly adverse effect. Satisfactory refractory products were obtained by slowly heating mixts. consisting of 25%, 30% and 40% of serpentine ($3MgO.2SiO_2.2H_2O$) with, resp., 75%, 70% and 60% of the MgO (produced as described) to 1580°, holding at that temp. for 20 min. and then cooling. The possibility of including the above-outlined process for sepg. MgO as an integral step in the Solvay process is mentioned.

J. W. Perry

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Influence of carriers on the direction of a reaction. I. B. Adadurov, I. I. Rivlin and N. M. Kovalev. *Phys. Chem.* (U.S.S.R.) 8, 147-58(1936). -Data are given on the compn. of the products of oxidation of NH_3 (N_2O, N_2O) and N_2) at 450° to 750° in the presence of Pt deposited on the sulfates of Be, Mg, Ca, Sr and Ba. It is concluded that N_2O is a secondary product of oxidation of free N_2. For powerful catalysts the oxidation goes direct to complete disintegration of NH_3 and subsequent formation of NO. Weak catalysts give first NH_3 and then N_2. By changing the catalyst carrier one can regulate the relative amts. of NO and N_2 formed, the amt. of NO increasing linearly with temp. and in the order of increasing at radius from 50, 50, 60, 70, 88 at 450° to 61, 70, 80, 80, 97 at 750°. In the absence of sufficient O, decompn. to H, + N, only occurs F. H. Rathmann

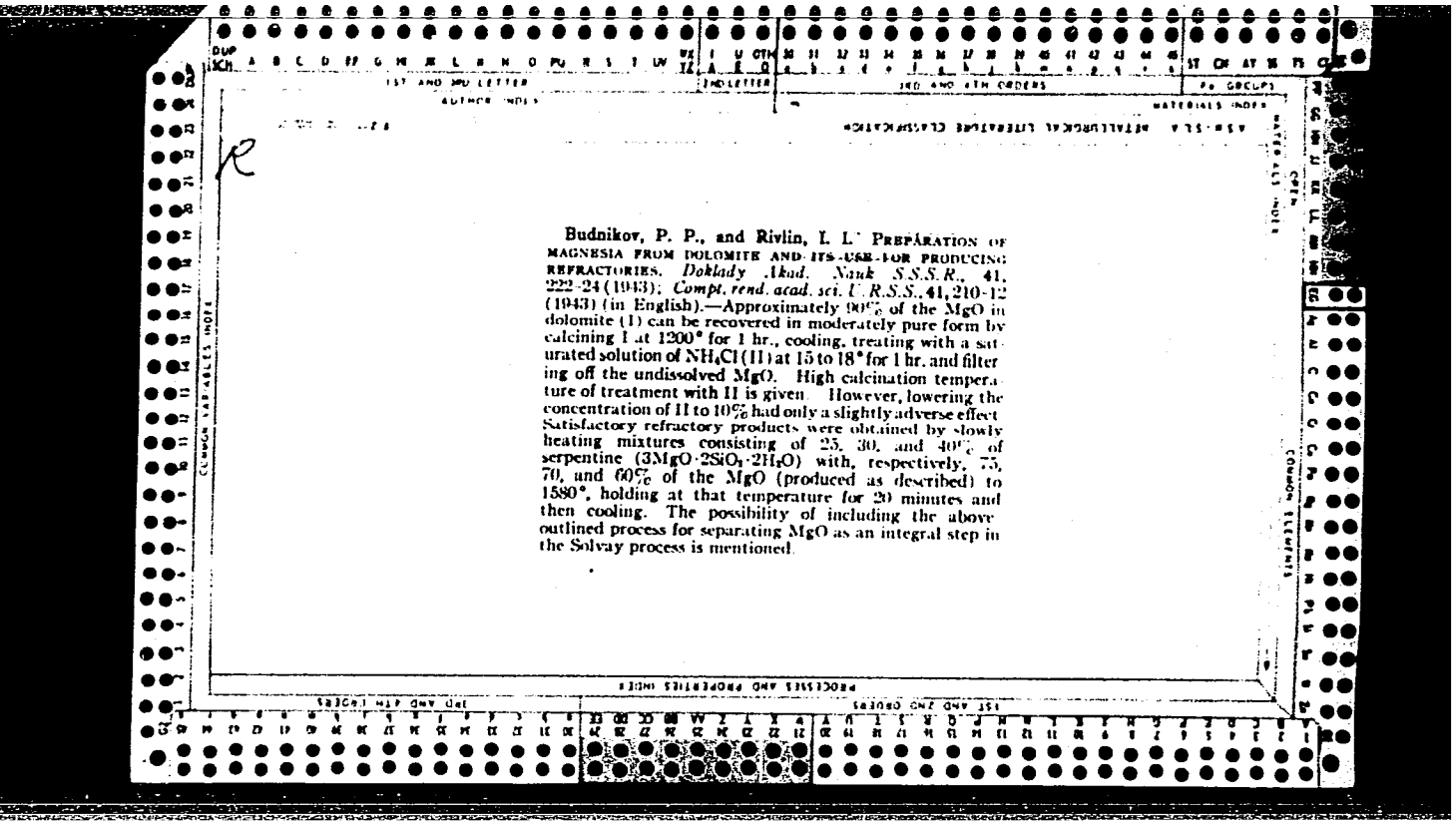


CA

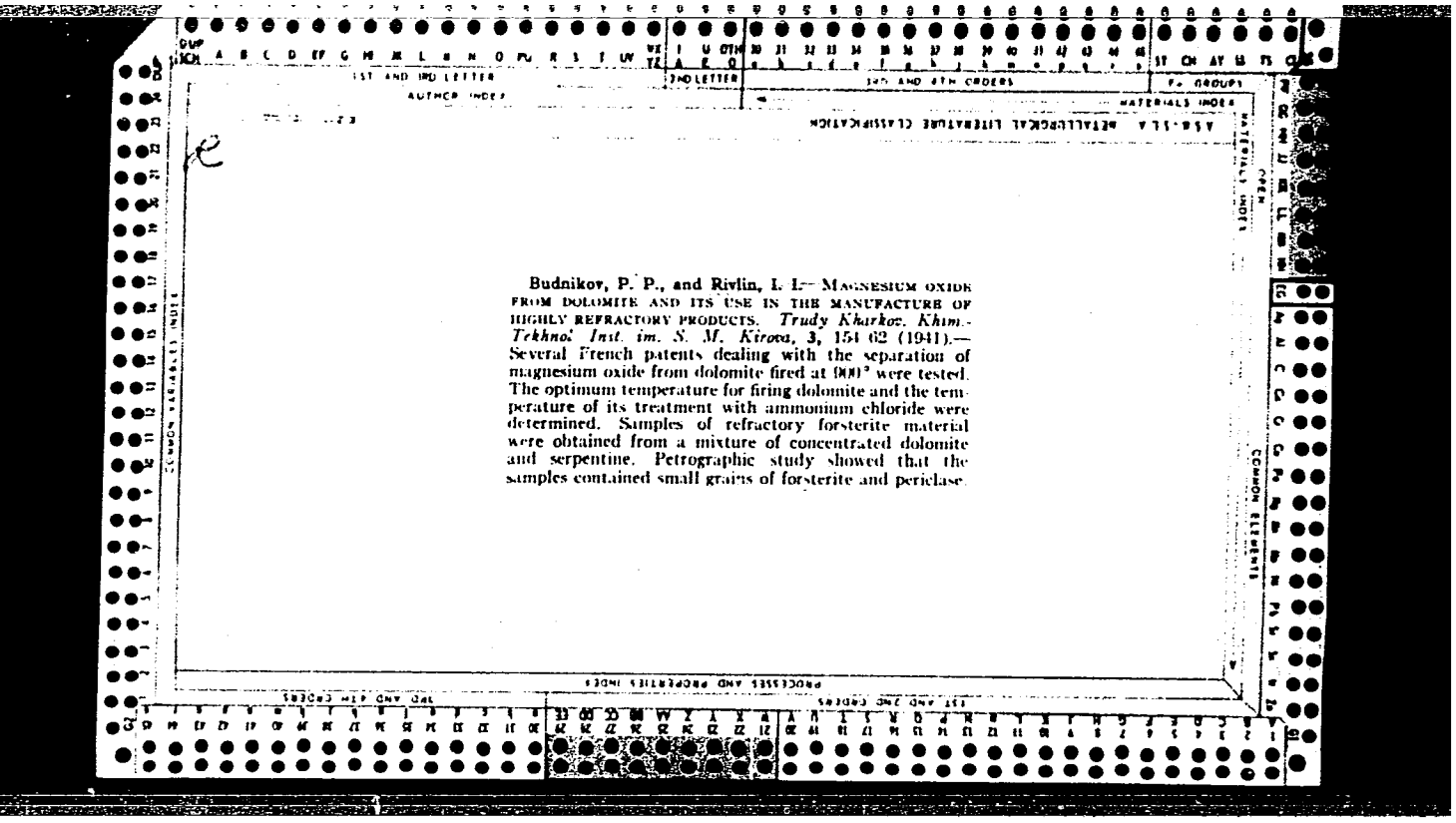
16

PRODUCTION OF SODIUM SULFIDE BY MEANS OF GASEOUS REDUCING AGENTS.
M. I. Nekrich and I. I. Rivlin. Ukrain. Khem. Zhur. 10, Wiss.-tech. Tl. 367-74(1935). Na_2S was prepd. by heating Na_2SO_4 to 900° with a mixt. of gases similar in compn. to producer gas. The product (94% yield) consists of 84% Na_2S.

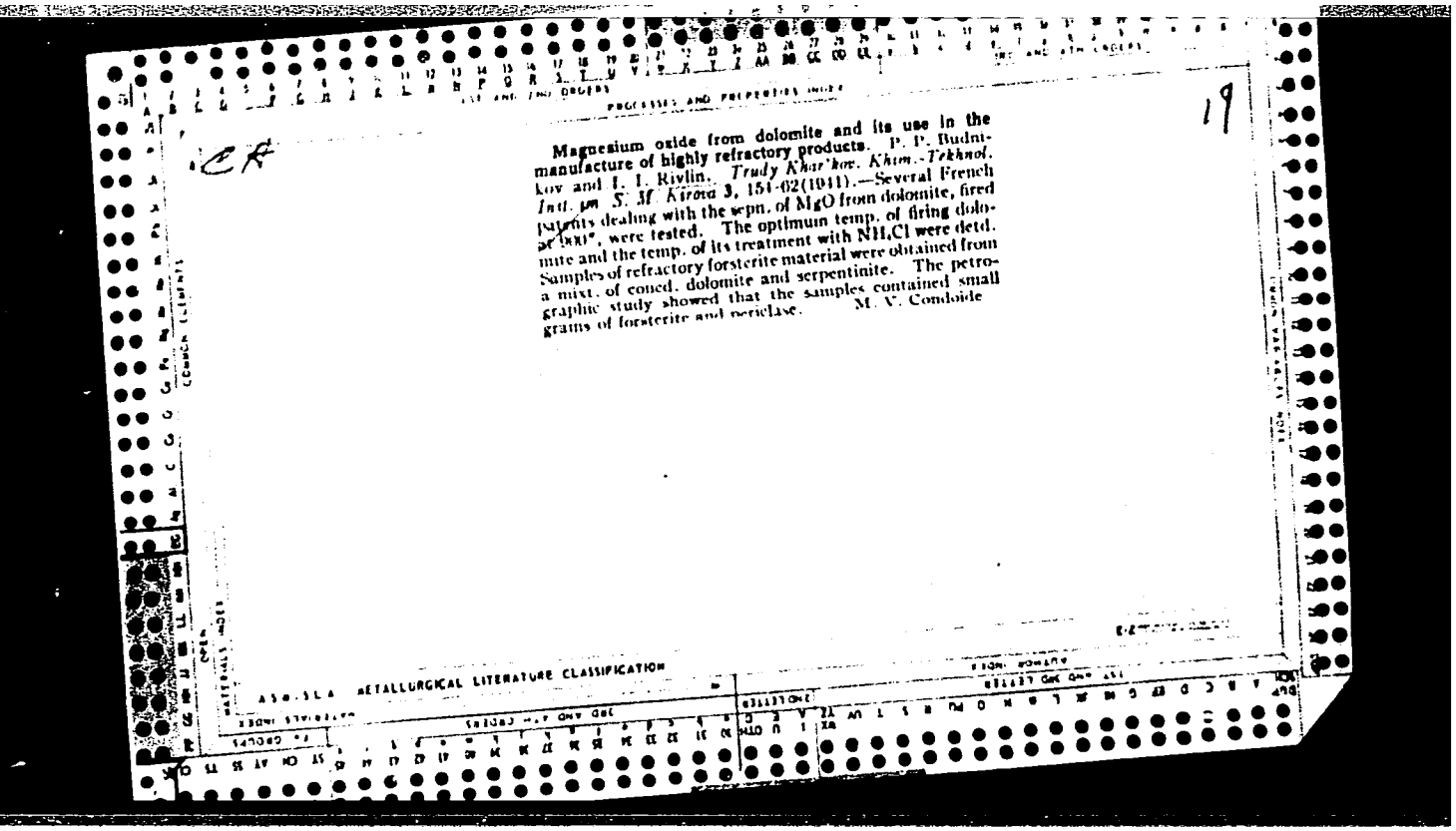
J.G. Tolpin



Budnikov, P. P., and Rivlin, L. L. PREPARATION OF MAGNESIA FROM DOLOMITE AND ITS USE FOR PRODUCING REFRACTORIES. *Doklady Akad. Nauk S.S.S.R.*, 41, 222-24 (1943); *Compt. rend. acad. sci. U.R.S.S.*, 41, 210-12 (1943) (in English).—Approximately 90% of the MgO in dolomite (I) can be recovered in moderately pure form by calcining I at 1200° for 1 hr., cooling, treating with a saturated solution of NH_4Cl (II) at 15 to 18° for 1 hr. and filtering off the undissolved MgO. High calcination temperature of treatment with II is given. However, lowering the concentration of II to 10% had only a slightly adverse effect. Satisfactory refractory products were obtained by slowly heating mixtures consisting of 25, 30, and 40% of serpentine ($3MgO \cdot 2SiO_2 \cdot 2H_2O$) with, respectively, 75, 70, and 60% of the MgO (produced as described) to 1580°, holding at that temperature for 20 minutes and then cooling. The possibility of including the above outlined process for separating MgO as an integral step in the Solvay process is mentioned.



Budnikov, P. P., and Rivlin, I. I.— MAGNESIUM OXIDE FROM DOLOMITE AND ITS USE IN THE MANUFACTURE OF HIGHLY REFRACTORY PRODUCTS. *Trudy Kharkov. Khim.-Tekhnol. Inst. im. S. M. Kirova*, **3**, 154–62 (1941).— Several French patents dealing with the separation of magnesium oxide from dolomite fired at 900° were tested. The optimum temperature for firing dolomite and the temperature of its treatment with ammonium chloride were determined. Samples of refractory forsterite material were obtained from a mixture of concentrated dolomite and serpentine. Petrographic study showed that the samples contained small grains of forsterite and periclase.

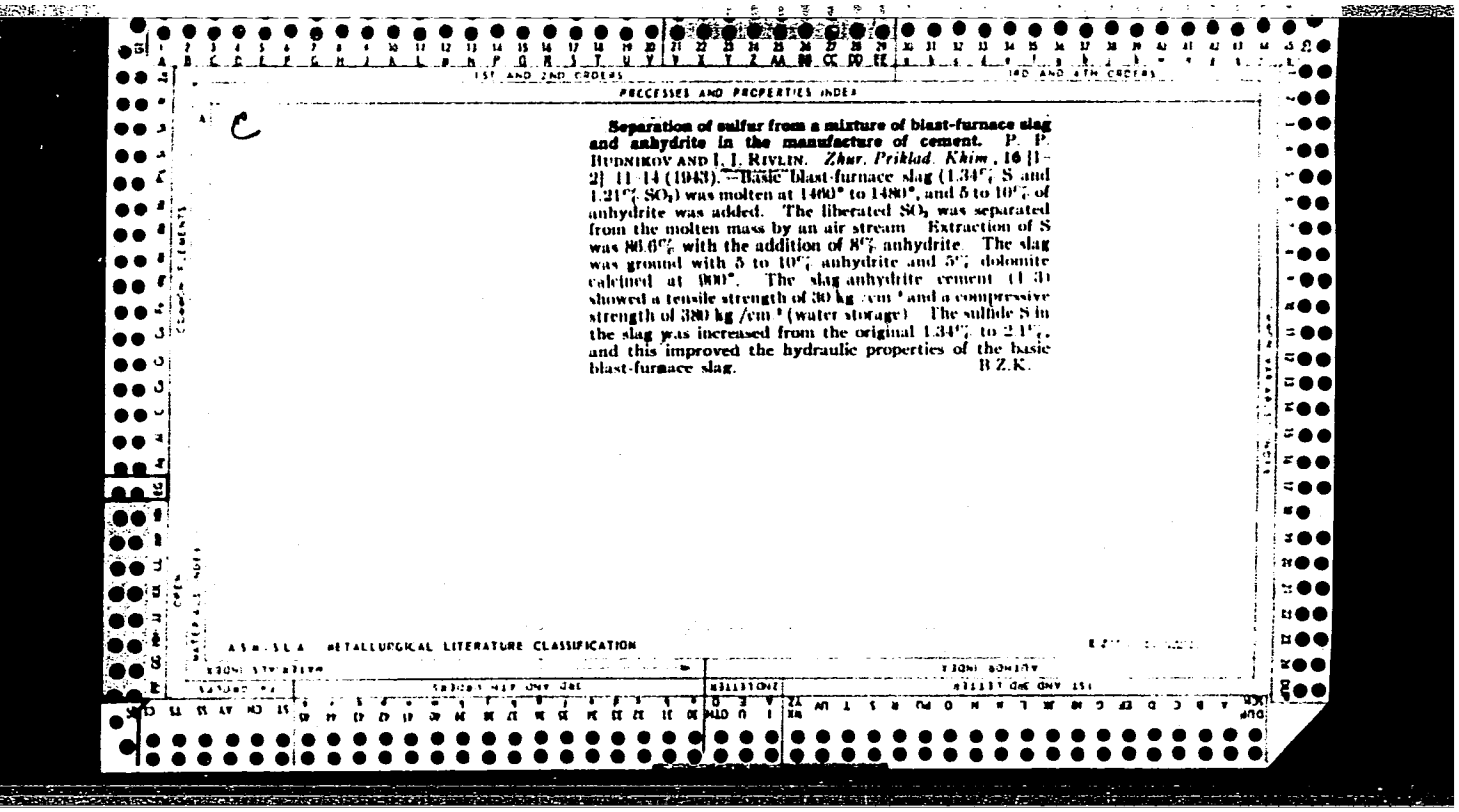


Magnesium oxide from dolomite and its use in the manufacture of highly refractory products. P. P. Budnikov and I. I. Rivlin. *Trudy Khar'kov. Khim.-Tekhnol. Inst. im. S. M. Kirova* 3, 151-62(1941).—Several French patents dealing with the sepn. of MgO from dolomite, fired at 1000°, were tested. The optimum temp. of firing dolomite and the temp. of its treatment with NH_4Cl were detd. Samples of refractory forsterite material were obtained from a mixt. of coned. dolomite and serpentinite. The petrographic study showed that the samples contained small grains of forsterite and periclase. M. V. Condoide

[redacted], I. I.
[redacted], Trudy Kharkov Mekh. Tekhnol. Inst. S. M. Kirova 1, 12-16, 1939

[illegible], [illegible]

[illegible], Trudy Krasnodar Khim-Tekh Inst, 1939, (1), 1[illegible]-18



1ST AND 2ND ORDERS

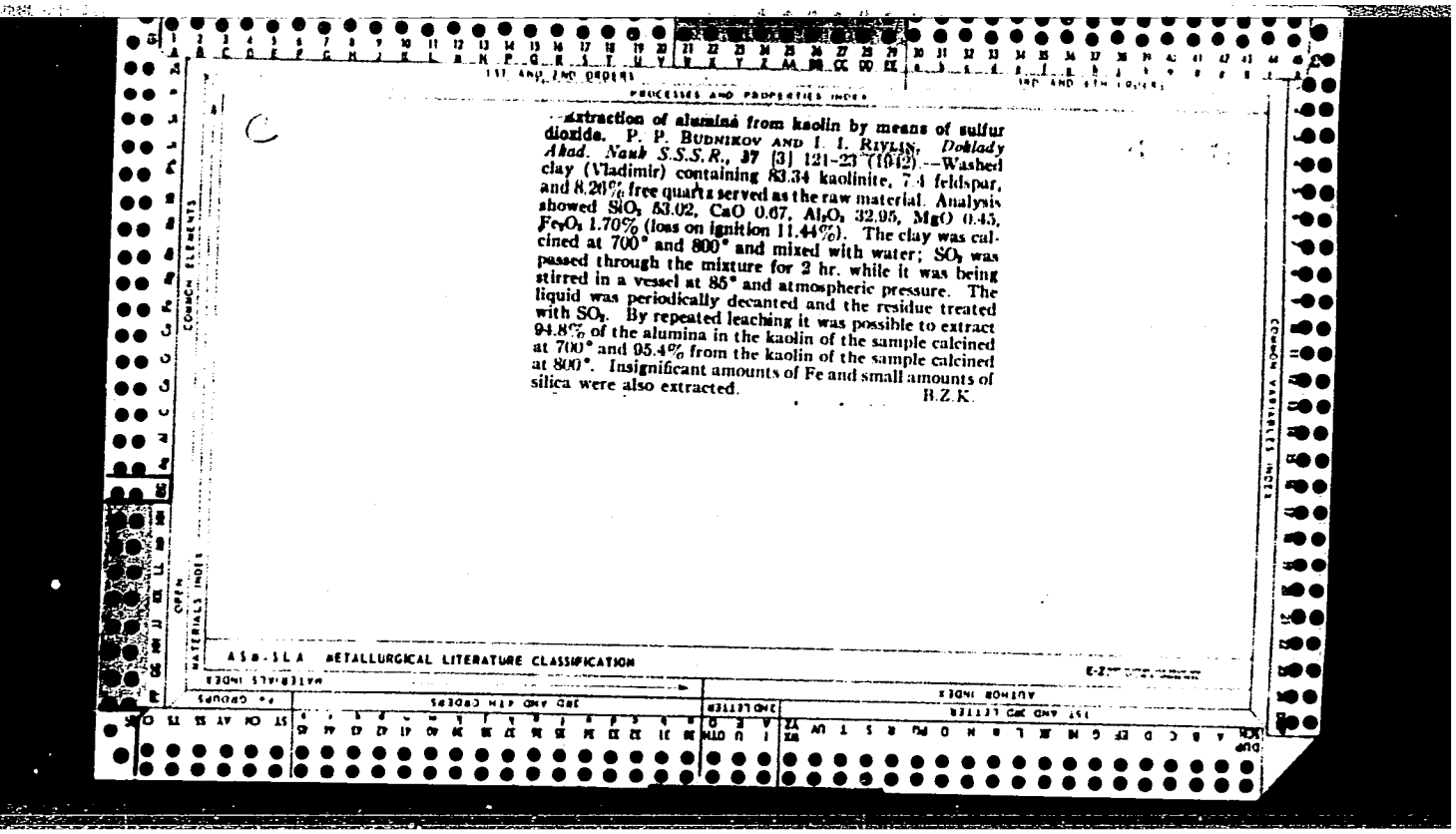
3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

C

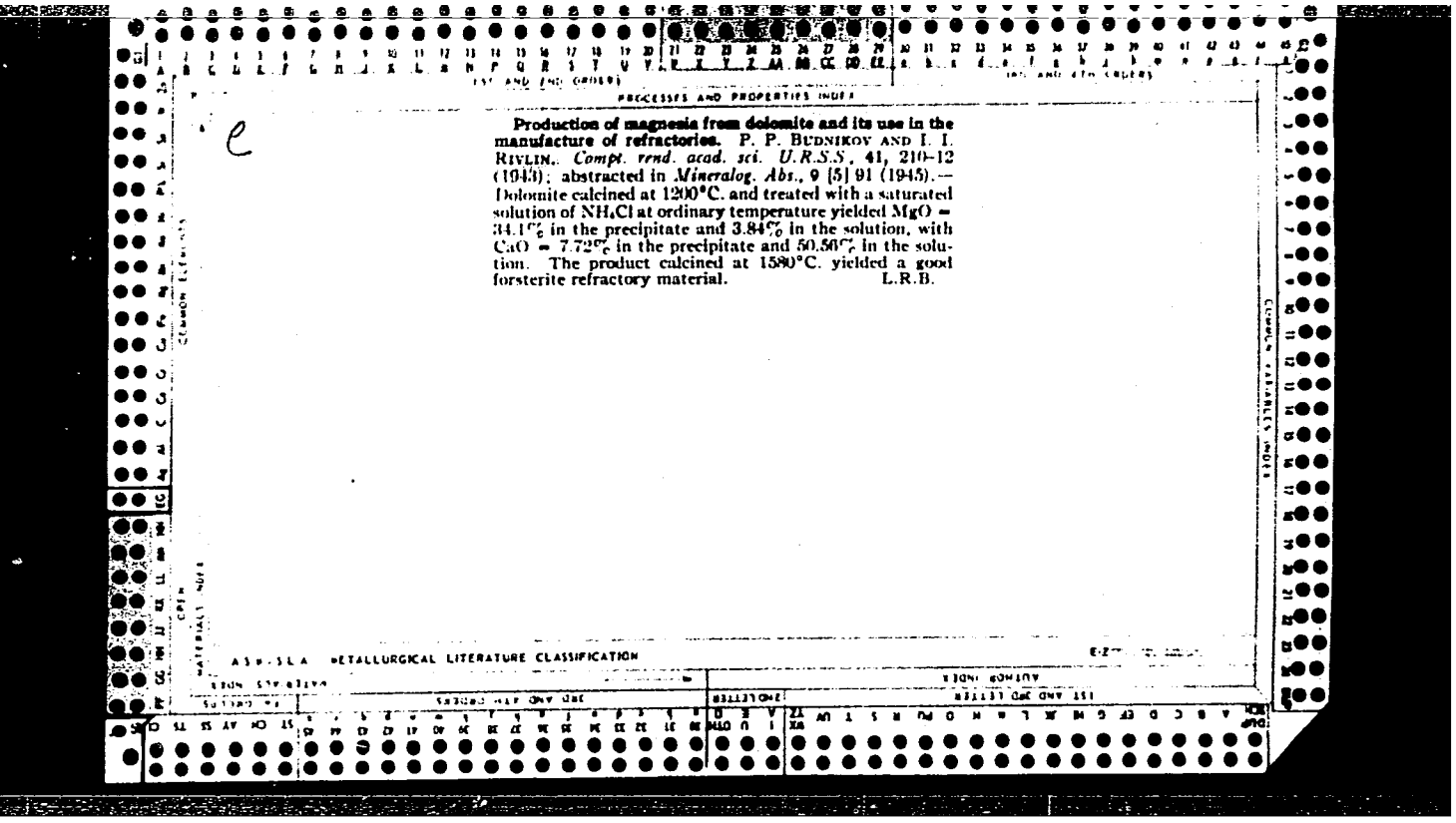
Separation of sulfur from a mixture of blast-furnace slag and anhydrite in the manufacture of cement. P. P. Budnikov and I. I. Rivlin. *Zhur. Priklad. Khim.*, 16 [1–2] 11–14 (1943).—Basic blast-furnace slag (1.34% S and 1.21% SO_3) was molten at 1460° to 1480°, and 5 to 10% of anhydrite was added. The liberated SO_2 was separated from the molten mass by an air stream. Extraction of S was 80.6% with the addition of 8% anhydrite. The slag was ground with 5 to 10% anhydrite and 5% dolomite calcined at 900°. The slag anhydrite cement (1:3) showed a tensile strength of 30 kg/cm² and a compressive strength of 380 kg/cm² (water storage). The sulfide S in the slag was increased from the original 1.34% to 2.1%, and this improved the hydraulic properties of the basic blast-furnace slag. B Z K.

A S M - S L A METALLURGICAL LITERATURE CLASSIFICATION



Extraction of alumina from kaolin by means of sulfur dioxide. P. P. Budnikov and I. I. Rivlin. *Doklady Akad. Nauk S.S.S.R.*, **37** [3] 121–23 (1942).—Washed clay (Vladimir) containing 83.34 kaolinite, 7.4 feldspar, and 8.26% free quartz served as the raw material. Analysis showed SiO_2 53.02, CaO 0.67, Al_2O_3 32.95, MgO 0.45, Fe_2O_3 1.70% (loss on ignition 11.44%). The clay was calcined at 700° and 800° and mixed with water; SO_2 was passed through the mixture for 2 hr. while it was being stirred in a vessel at 85° and atmospheric pressure. The liquid was periodically decanted and the residue treated with SO_2. By repeated leaching it was possible to extract 94.8% of the alumina in the kaolin of the sample calcined at 700° and 95.4% from the kaolin of the sample calcined at 800°. Insignificant amounts of Fe and small amounts of silica were also extracted.

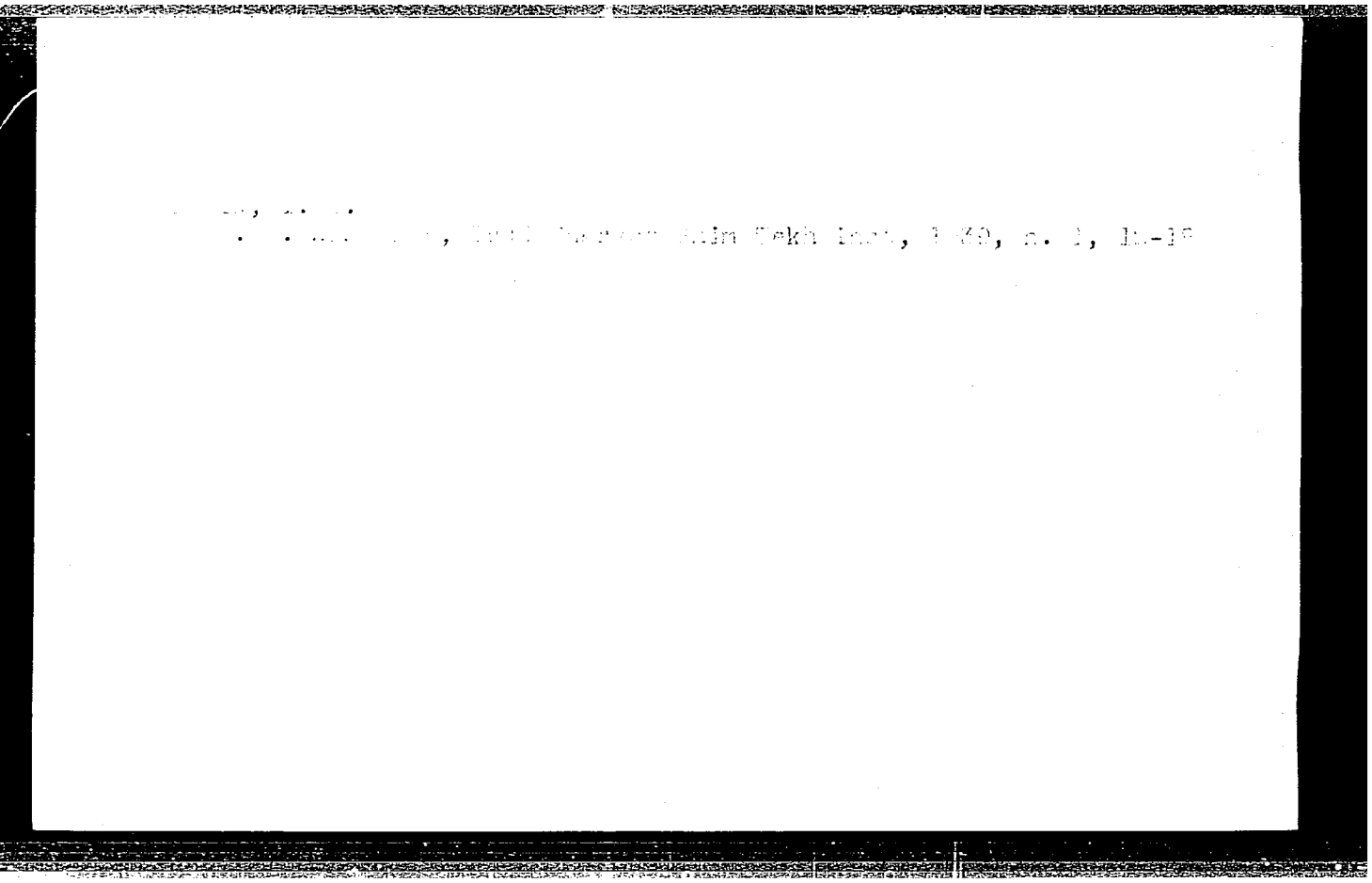
B.Z.K.

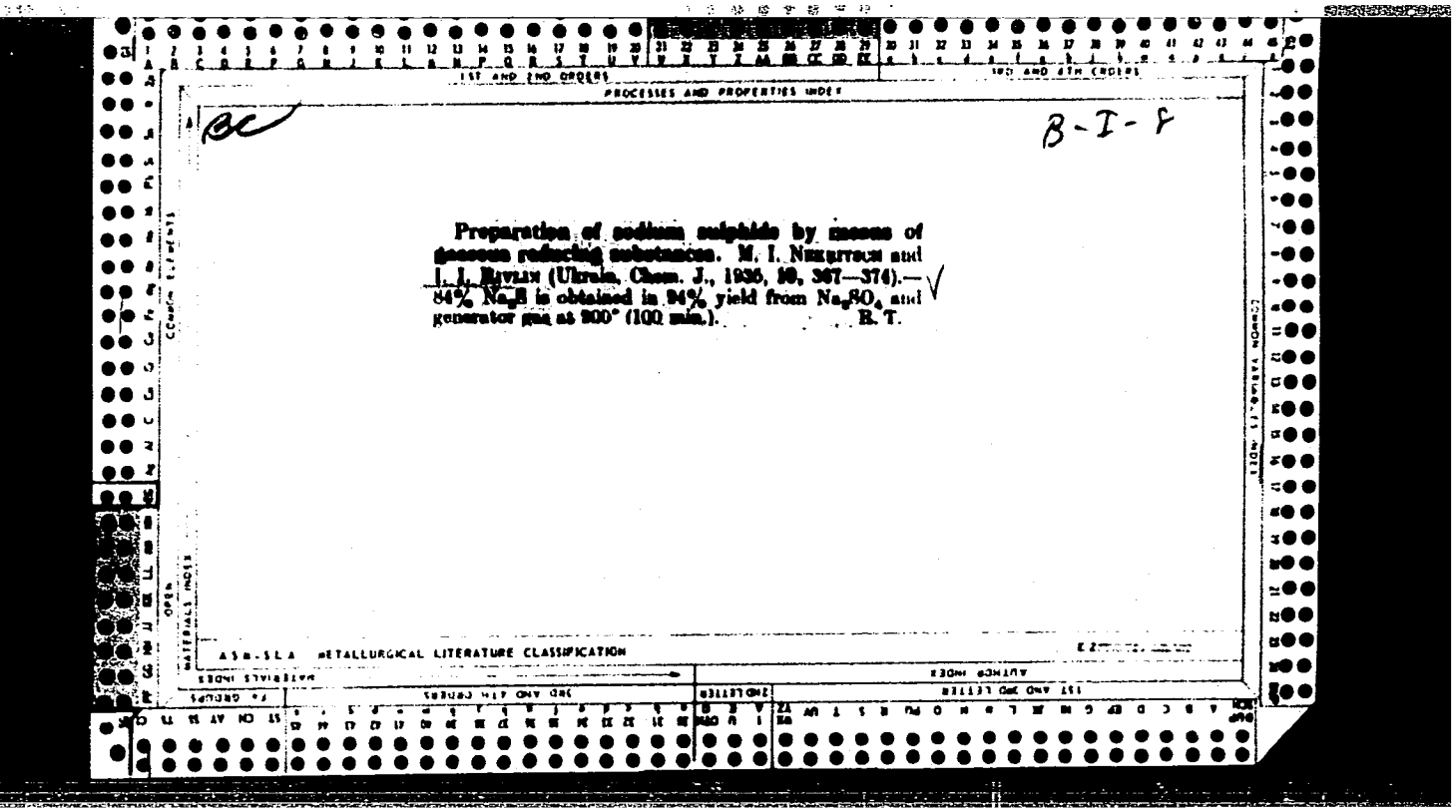


PROCESSES AND PROPERTIES INDEX

Production of magnesia from dolomite and its use in the manufacture of refractories. P. P. BUDNIKOV AND I. I. RIVLIN. *Compt. rend. acad. sci. U.R.S.S.*, 41, 210–12 (1943); abstracted in *Mineralog. Abs.*, 9 [5] 91 (1945).—Dolomite calcined at 1200°C. and treated with a saturated solution of NH_4Cl at ordinary temperature yielded MgO = 34.1% in the precipitate and 3.84% in the solution, with CaO = 7.72% in the precipitate and 50.56% in the solution. The product calcined at 1580°C. yielded a good forsterite refractory material. L.R.B.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION





PROCESSES AND PROPERTIES INDEX

B-I-f

Preparation of sodium sulphide by means of gaseous reducing substances. M. I. Nikitin and I. I. Ryvlin (Ukrain. Chem. J., 1936, 10, 367—374).— 84% Na_2S is obtained in 94% yield from Na_2SO_4 and generator gas at 900° (100 min.). R. T.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

BC

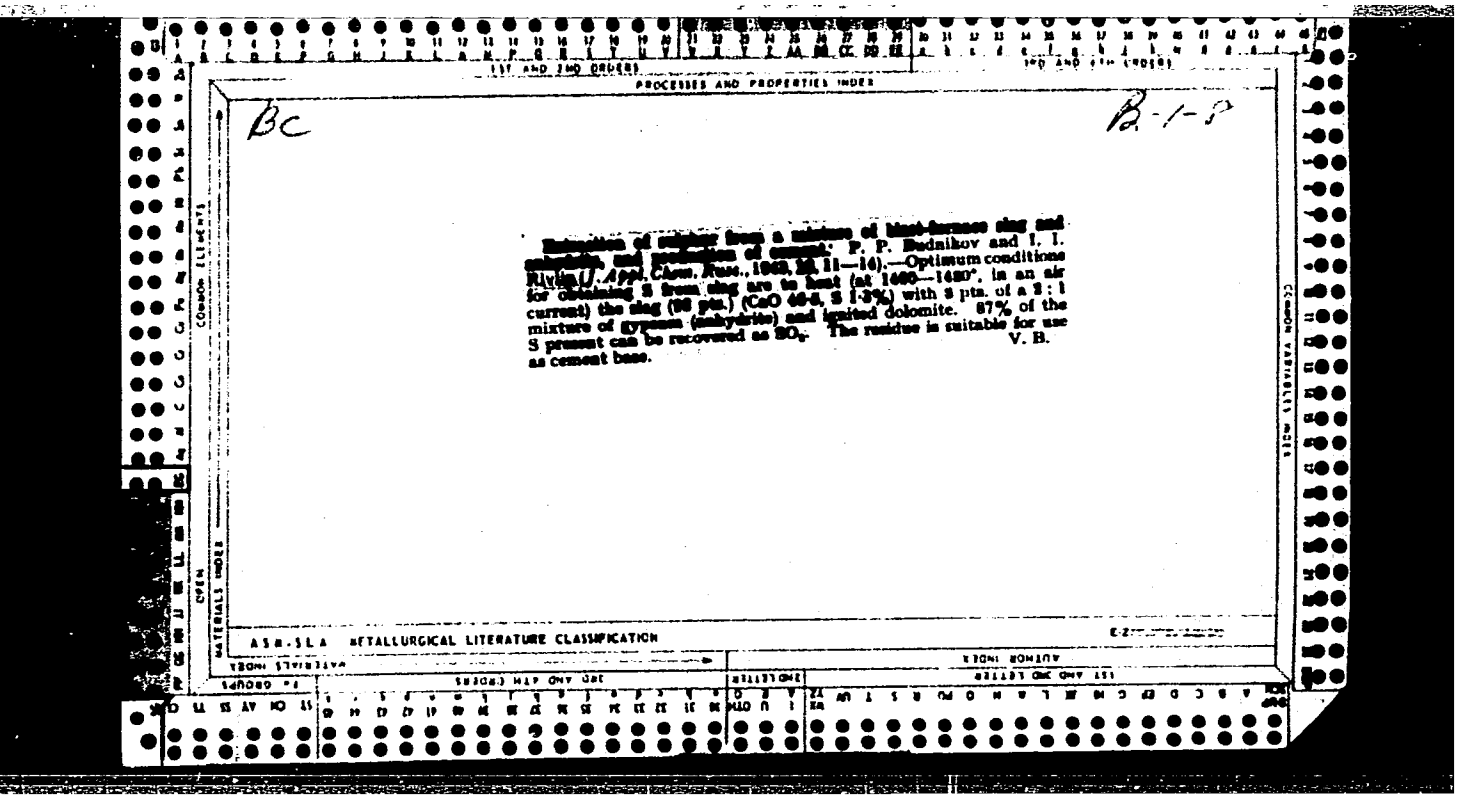
a-1

Influence of the carrier on which the catalyst is deposited on the direction of reactions. I. R. Abadurov, L. L. [illegible], and E. M. Kovalev (J. Phys. Chem. Russ., [illegible], 8, 147—150; see preceding abstract).—The change in the relative yields of NO and N_2 by oxidation of [illegible] on Pt catalyst deposited on $BaSO_4$, [illegible] and [illegible] at 450°, 550°, [illegible] and [illegible] has been measured. The relative quantities of NO decrease from [illegible]—97% with $BaSO_4$ to ~50% with [illegible]. This is attributed to a decrease in the "strength" of the catalyst by the electric fields of the smaller ions. E. R.

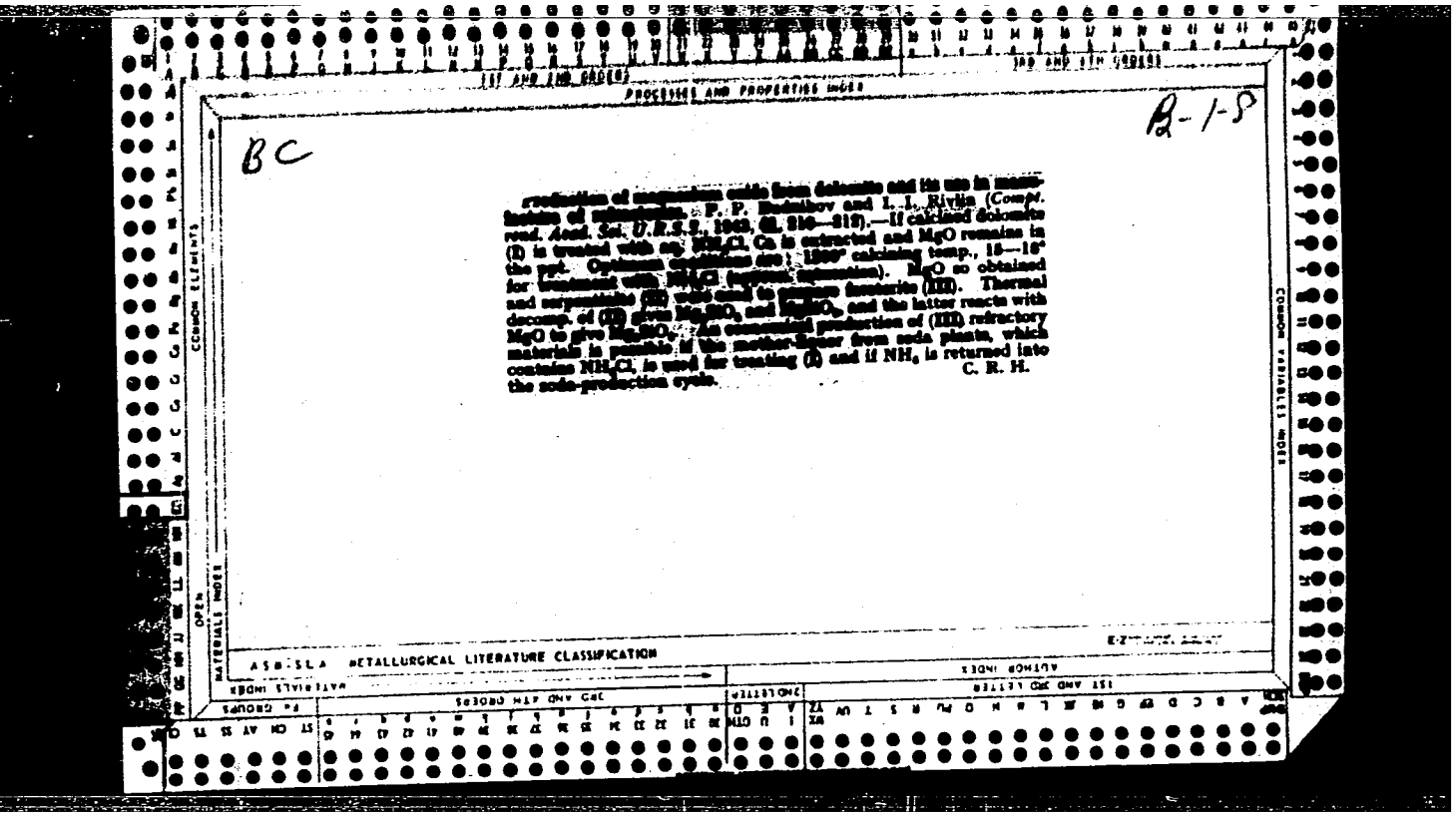
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

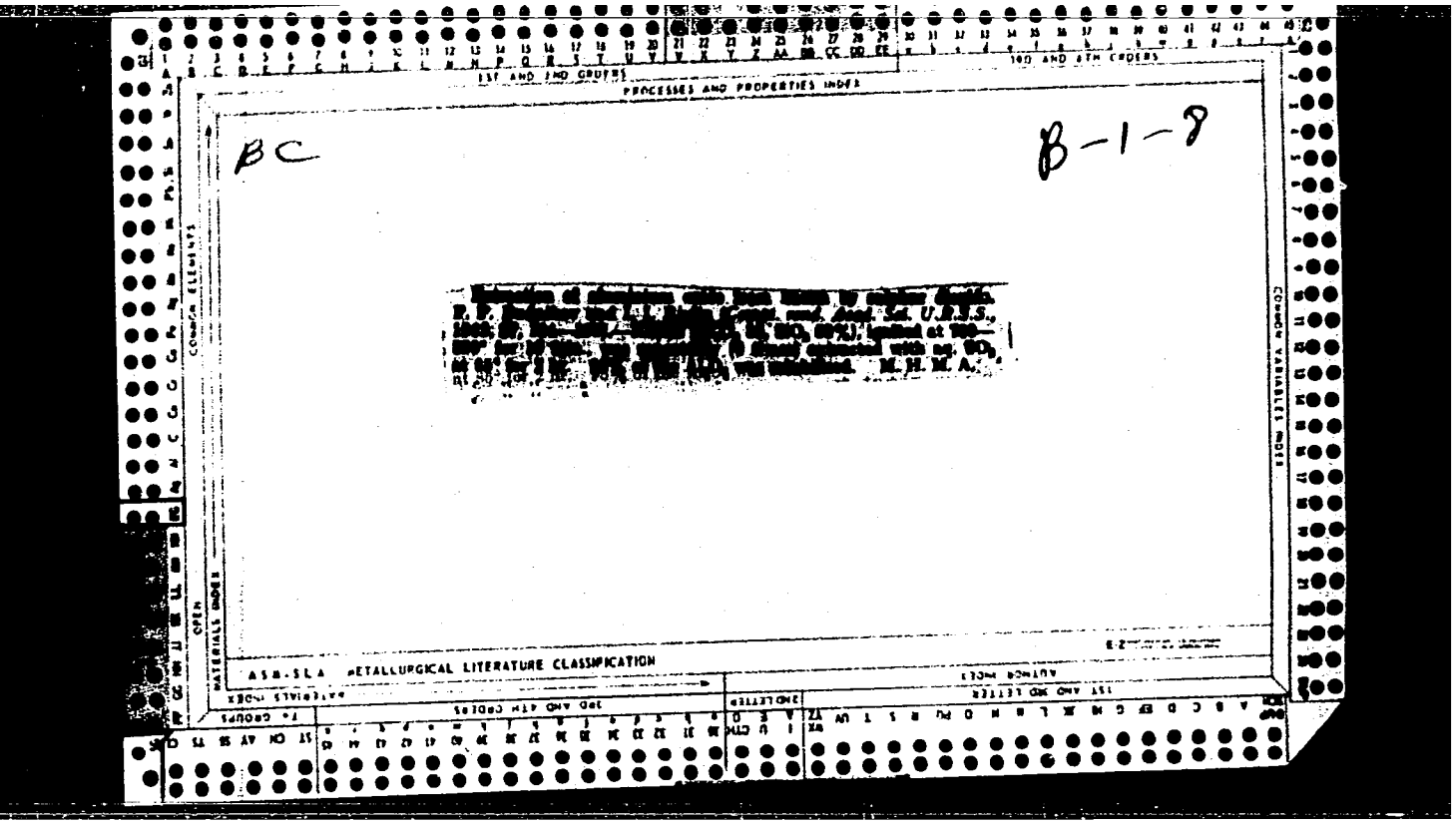
RIVLIN, I.I.; ZOLOTUKHIN, V.F.

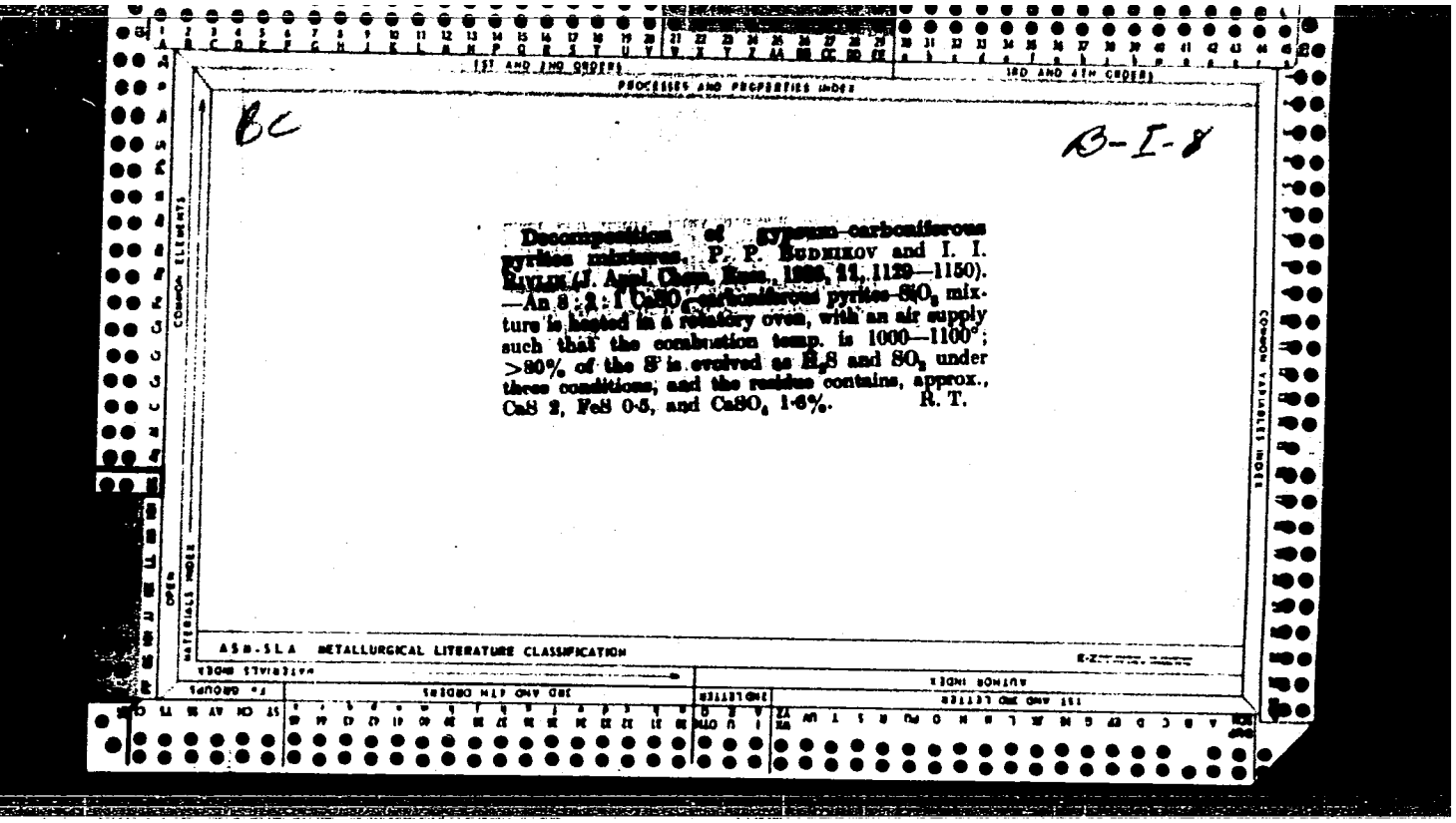
Making foamed silicate and concrete with barkhana. Trudy KhPI 31 no.1:113-124 '59. (MIRA 13:10)
(Building materials) (Lightweight concrete)



Extraction of sulphur from a mixture of blast-furnace slag and anhydrite, and production of cement. P. P. Budnikov and I. I. Rivin. *U. Appl. Chem. Russ.*, 1940, 13, 11—14).—Optimum conditions for obtaining S from slag are to heat (at 1400—1450°, in an air current) the slag (60 pts.) (CaO 40-6, S 1·3%) with 3 pts. of a 2 : 1 mixture of gypsum (anhydrite) and ignited dolomite. 87% of the S present can be recovered as SO_2. The residue is suitable for use as cement base. V. B.



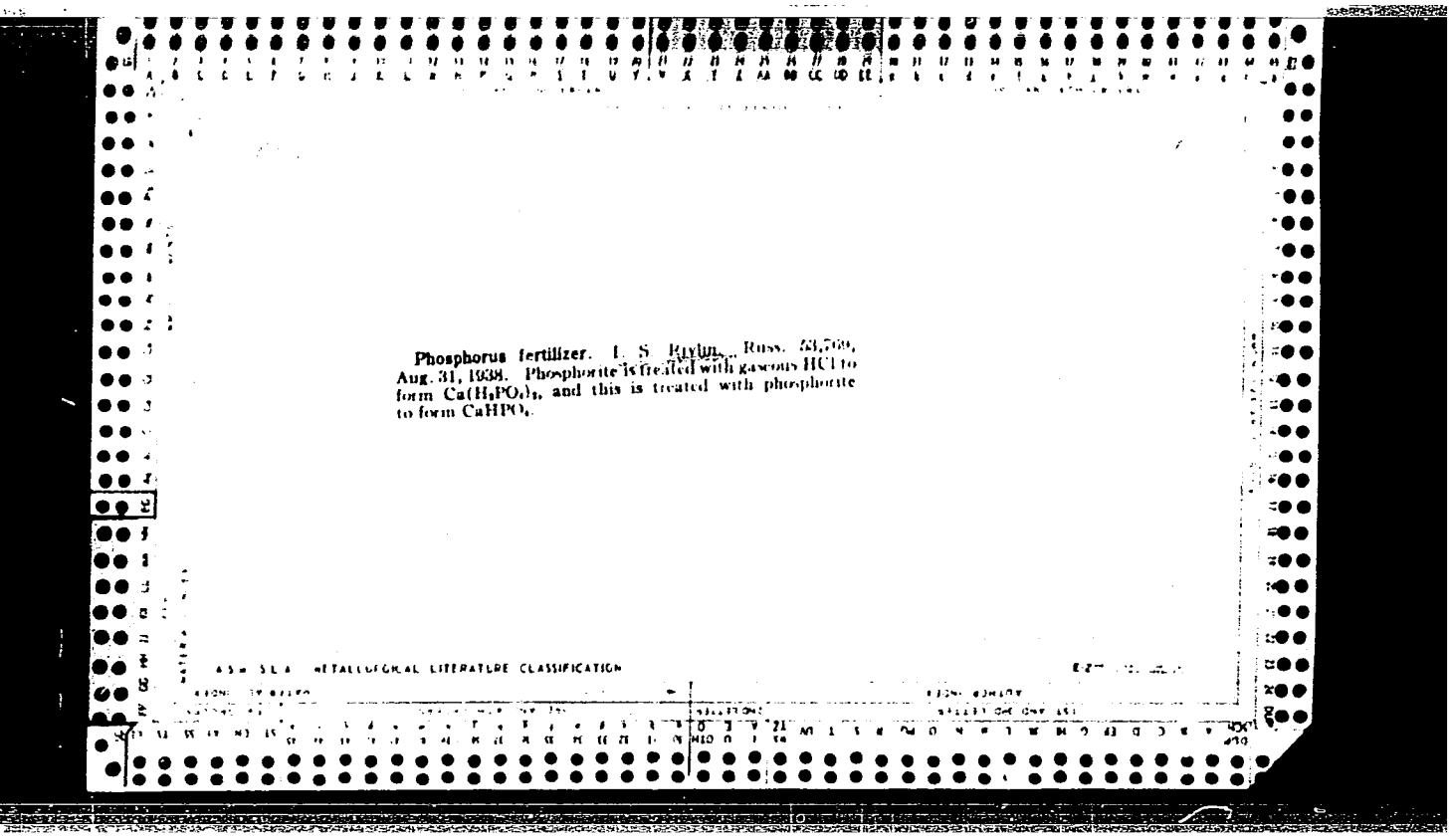




BC

B-I-8

Decomposition of gypsum-carboniferous pyrites mixtures. P. P. Budnikov and I. I. Ryvkin (J. Appl. Chem. Russ., 1939, 11, 1129—1150). —An 8 : 2 : 1 $CaSO_4$–carboniferous pyrites–SiO_2 mixture is heated in a rotatory oven, with an air supply such that the combustion temp. is 1000—1100°; >80% of the S is evolved as H_2S and SO_2 under these conditions, and the residue contains, approx., CaS 2, FeS 0·5, and $CaSO_4$ 1·6%. R. T.



Phosphorus fertilizer. I. S. Rivlin. Russ. 53,569, Aug. 31, 1938. Phosphorite is treated with gaseous HCl to form $Ca(H_2PO_4)_2$, and this is treated with phosphorite to form $CaHPO_4$.

ACC NR: AP7001339 SOURCE CODE: UR/0386/66/004/011/0449/0453

AUTHOR: Kurnosov, V. D.; Magalyas, V. I.; Pleshkov, A. A.; Rivlin, L. A.; Trukhan, V. G.; Tsvetkov, V. V.

ORG: none

TITLE: Self modulation of emission from an injection semiconductor laser

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 4, no. 11, 1966, 449-453

TOPIC TAGS: semiconductor laser, laser emission, laser pumping, light modulation, pn junction, gallium arsenide

ABSTRACT: The authors show first, by analyzing the kinetic equations for the power of an injection-type laser, that self modulation of such a laser is possible if it is assumed that the injection laser has the same self-oscillating properties as an optically pumped one. They then report on the time structure of a GaAs laser emission, observed experimentally by means of an electron-optical converter (EOC) (M. M. Bustlov, Uspekhi nauchnoi fotografii no. 6, 76, 1959) with a time-scanned image (sweep duration ~2 nsec). The GaAs diode with a p-n junction produced by diffusion was excited by single injection-current pulses of 1 - 5 amp and 600 nsec duration, synchronized with the pulsed supply to the EOC. The image of the glowing active layer of the diode was projected by microscope objectives from a vacuum liquid-nitrogen cryostat onto the photocathode of the EOC. The experiments showed clearly the emis-

Card 1/2

ACC NR: AP701339

sion self-modulation (spikes), whose period decreased with increasing injection current (from 0.35 nsec at 2 amp to 0.17 nsec at 4.3 amp). There was no self modulation of the spontaneous emission below threshold. Self modulation periods as low as 0.05 nsec were observed in different diodes with threefold excess over threshold. The synchronous self modulation was accompanied by non-synchronous modulation at individual points, probably due to differences in local thresholds and the inhomogeneous distribution of the injection-current density. The measurement results agree with the calculations in order of magnitude, but a more accurate comparison calls for knowledge of the mode content of the emission, since the calculations were made in the single-mode approximation. The authors thank M. M. Bustlov for consultation and supplying the EOC tubes. Orig. art. has: 1 figure and 3 formulas.

SUB CODE: 20/ SUBM DATE: 29Jul66/ ORIG REF: 002/ OTH REF: 003

Card 2/2

RIVLIN, L.A.

Negative resonance absorption of light in a stable medium. Zhur. eksp. i teor. fiz. 47 no.2(8)624-626 Ag '64. (MIRA 17:10)

RIVLIN, L.A.

Vavilov-Cherenkov hard radiation in single crystals. Fiz. v red.
Zhur.eksper. i teor.fiz. 2 no.3:7-11 My '65. (MIRA 18:10)

L 1074-66 EWA(k)/FBD/EWT(l)/EWP(e)/EWT(m)/EEC(k)-2/EWP(i)/T/EWP(k)/EWP(b,/
EWA(m)-2/EWA(h) SCTB/IJP(c) WG/WH
ACCESSION NR: AP5008742 S/0056/65/048/003/0845/0849

AUTHOR: Borodulin, V. I.; Yermakova, N. A.; Rivlin, L. A.; Shil'dyayev, V. S.

TITLE: Emission of single pulses of coherent light by a two-component medium with negative absorption

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 48, no. 3, 1965, 845-849

TOPIC TAGS: coherent light, negative absorption, pulsed laser, ruby laser, air breakdown

ABSTRACT: Stimulated emission is studied in a medium containing two types of quantum emitters with identical energy transitions in a Fabry-Perot resonator. When the relationship between parameters reaches a certain value, this type of medium emits single pulses of light. The shape, amplitude, energy and duration of the pulses are theoretically determined. Emission of this type was experimentally observed in a two-component medium consisting of a cylindrical ruby single crystal 75 mm long with a Cr-concentration of 0.05%, and a plane-parallel plate of KS-19 glass 3 mm thick located in a resonator with mirrors having transmission factors of 0 and 30%. Pumping was done by pulse discharge of a 1600-joule capacitor bank through two IPF-800 tubes. The emitted pulse had a duration of 70-

Card 1/3

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ACCESSION NR: AP5008742

-80 nanoseconds and a total energy of 0.08-0.1 joule, which corresponds to an amplitude of about 1.0-1.4 Mw. An increase in the pumping level or a reduction in the thickness of the glass causes a repeat performance of the entire phenomenon with two more pulses separated by an interval of about 70 μsec. The emitted pulse was amplified in a ruby single crystal 240 mm long with coated end surfaces, pumped by two IPF-5000 tubes with a total flash energy of 5400 joules. The output pulse had an amplitude of about 10-14 Mw. When this light was concentrated by a lens with a focal length of 130 mm, an intense electric breakdown was observed in the free air. Experiments of this type using KS-17 and KS-18 glass showed similar results with somewhat weaker energies and amplitudes. The light transmission factor for KS-19 glass is strongly dependent on the intensity of the incident light (see fig. 1 of the Enclosure). The results of the experiment are ambiguous, and a special analysis will be required to determine whether the theoretical mechanism proposed in the paper is applicable to the experiment described. Orig. art. has: 5 figures, 11 formulas.

ASSOCIATION: none
SUBMITTED: 28Oct64
NO REF SOV: 003

ENCL: 01
OTHER: 005

SUB CODE: EC, OP

Card 2/3

L 10714-66

ACCESSION NR: AP5008742 ENCLOSURE: 01

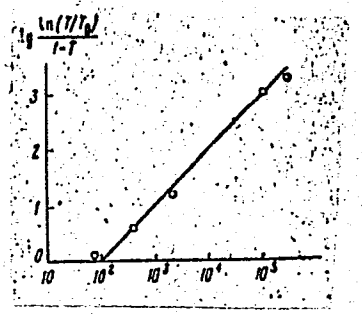


Fig. 1. Transmission factor of KS-19 glass as a function of the intensity of incident light (in W/cm^2).

Card 3/3

RIVLIN, L.A.

Negative resonant absorption of an electromagnetic signal in a medium with two pairs of equidistant levels. Radiotekh. i elektron. 10 no.4: 665-672 Ap '65. (MIRA 18:5)

L 8931-65 EWA(k)/EWT(l)/K/EEC(k)-2/T/EEC(b)-2/EWP(k)/EWA(m)-2 Po-4/Pf-4/ Pi-4/Pl-4 IJP(c)/AFWL/RAEM(i)/BSD/RAEM(a)/SSD/ASD(a)-5/RAEM(t)/AFETR/ESD(gs)/ ESD(t) WG/JHB

ACCESSION NR: AP4043639 S/0056/64/047/002/0624/0626

AUTHOR: Rivlin, L. A.

TITLE: Negative resonance absorption of light in a stable medium

SOURCE: Zh. eksper. i teor. fiz., v. 47, no. 2, 1964, 624-626

TOPIC TAGS: negative absorption, resonance absorption, monochromatic radiation, monochromatic light, maser amplifier, maser

ABSTRACT: Negative absorption of light is analyzed in a medium with two types of quantum emitters in which only equidistant transitions are possible. It is shown that under certain conditions, negative absorption of light can occur in a medium which is stable in its initial state. This effect takes place when the number of photons per unit of the cross section of the light beam exceeds a certain threshold value. The necessary conditions for attaining negative absorption are derived in terms of the characteristics of the media. It is also shown that a medium with a threshold for negative absorption is stable in respect to the photon background of spontaneous emission. Orig. art. has: 6 formulas.

Card 1/2

L 8931-65

ACCESSION NR: AP4043639

ASSOCIATION: none

SUBMITTED: 21Feb64 ATD PRESS: 3109 ENCL: 00

SUB CODE: OP NO REF SOV: 004 OTHER: 002

Card 2/2

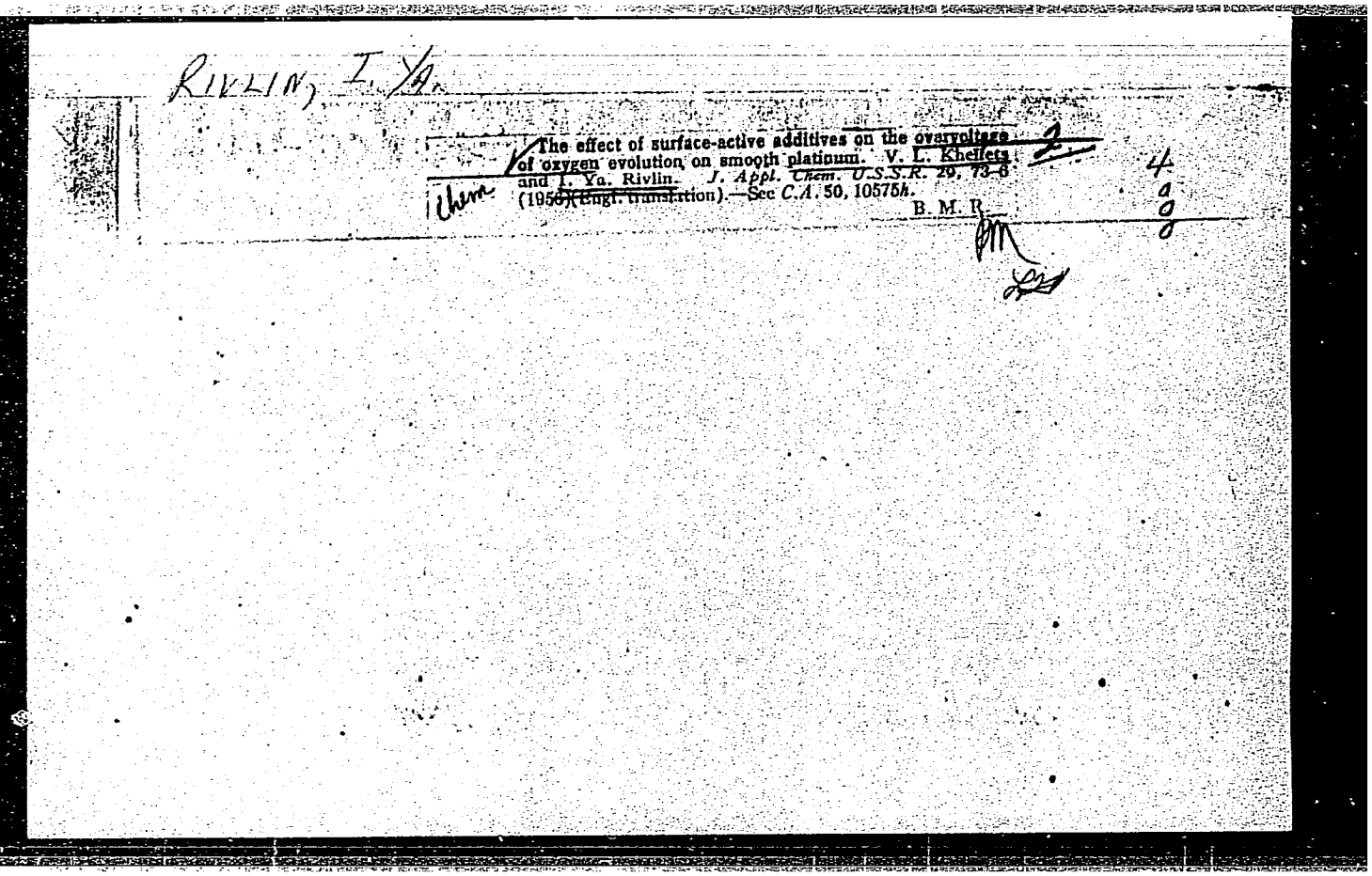
DECEASED

RIVLIN, Lev Borisovich

c. '63

1964

ELECTRIC MOTORS



RIVLIN, I. Ya.

The effect of surface-active additives on the overvoltage of oxygen evolution on smooth platinum. V. L. Kheifets and I. Ya. Rivlin. *J. Appl. Chem. U.S.S.R.* 29, 73-8 (1956) (Engl. translation).—See *C.A.* 50, 10575*h*.

Chem

B. M. R.

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8
8

RIVLIN, I. YA.

CHEM

*Dependence of the Oxygen Overvoltage on Smooth Platinum on the Concentration of Sulphuric Acid. V. I. Kheifets and I. Ya. Rivlin (*Zhur. Priklad. Khim.*, 1955, 28, (12), 1291–1297).—[In Russian]. Kh. and R. studied the polarization of Pt in H_2SO_4, determining the c.d. for the discharge of O (I_{O_2}) by measuring the vol. of gas liberated, as used by Frumkin and Kolotyrkin in their investigation of H overvoltages (*Zhur. Fiz. Khim.*, 1941, 15, 346; *M.A.*, 10, 250; *Doklady Akad. Nauk S.S.S.R.*, 1941, 33, 446). The anode was a disc of surface area 0·95 cm.², mounted in a vertical plane. The bath was agitated with a jet of air before each detn., and all the measurements were made at 21·6° ± 1° C. Reproducible results could be obtained by previously subjecting the anode to long continuous polarization. The acid concentrations were varied from 0·058 *M* to 21·761 *M*; with increasing concentration, the polarization curves moved in the direction of more positive anode potentials (ϕ_a), and the slope of the ϕ_a/log I_{O_2} curves ($d\phi_a$/d log I_{O_2}) increased from ~0·037 to 0·408, but was practically const. at the lower concentrations studied. The slowest stage in the process of anodic evolution

(over)

Dependence of the Oxygen...

of O is the electrochem. part. In soln. with H_2SO_4 concentrations $>0{\cdot}4$, at certain c.d. there is a stronger bond formed between the O and Pt, leading to a new value of the absorption potential. Kh. and R. also measured the capacity of the double layer on the Pt anode after continued operation. Plots of the capacity versus ϕ_a for 0·5, 2, and 6*M* soln. of H_2SO_4 showed max., corresponding to the reduction (desorption) of the adsorbed O, but the curves for 15·2 and 21·7*M* soln. did not exhibit max. and were situated well below the others. This confirmed the existence of a different type of O–Pt bond at higher concentrations.—O. V. F. T.

Rivlin, I.V.

Overvoltage of oxygen on smooth platinum as a function of sulfuric acid concentration. V. L. Khedekar and I. V. Rivlin. *Zhur. Prikład. Khim.* 28, 1291-7(1955).—The overvoltage of O on smooth Pt, φ, was detd. in a glass cell at 21.5°. The vertical Pt anode, subjected to prolonged polarization (10-15 days), gave const. values of φ within ±1.5 – 3 mv. for 30 min. The curves φ vs. I_k (I) (I_k = the c.d. detd. by the vol. of O evolved) shifted toward more pos. values of φ. Up to 0.6 molal H_2SO_4 φ vs. log I_k (II) was linear and $d\varphi/dI_k$ (III) remained const. (0.037). At higher concns. of H_2SO_4 III increased up to 0.108 in 21.7 molal H_2SO_4, and the II curves, after the initial linearity, curved and became linear again. The section of initial linearity became shorter as the acid concn. increased so that in 21.7 molal H_2SO_4 it vanished and the entire curve was linear with III of the same value as that of the 2nd linear portion of the curve with acids of lower concn. The values of I_k and the c.d. I, detd. galvanometrically, coincided up to 15.2 molal H_2SO_4; in higher concns., the 2 values did not coincide, indicating a secondary electrode process (formation of $H_2S_2O_8$). Plots of II and log I in 2.4-2.8 molal H_2SO_4 deviated more and more as the acid concn. increased. The capacity of the double layer on the Pt anode vs. φ in 0.5, 2, and 5 molal H_2SO_4 were similar curves with 2 max., whereas the curves in 15.2 and 21.7 molal H_2SO_4 were much lower and did not exhibit the max. of desorption.

I. Bencowitz

KHEYFETS, V.L.; RIVLIN, I.Ya.

Relation of hydrogen overvoltage on polished platinum to the presence of surfactant admixtures. Zhur.prikl.khim. 29 no.1:69-73 Ja '56. (MLRA 9:5)

(Overvoltage) (Hydrogen) (Surface-active agents)

RIVLIN, I. YA.

The effect of surface-active additives on the overvoltage of oxygen evolution on smooth platinum. V. L. Kheifets and I. Ya. Rivlin. *Zhur. Priklad. Khim.* 29, 69–73(1956); cf. ~~C.A. 50, 10266.~~—The effect of additives on the overvoltage of O evolution on smooth Pt anodes was studied in 0.5 molal H_2SO_4 to which were added satd. solns. of nonylic, caprylic, and heptylic acids (0.0014, 0.0046, and 0.02*M*, resp.) and 0.005*N* thiourea. The values of φ and d log $I_0/d\varphi$ (c.d. 10 ma./sq. cm.) of solns. without additives and with the additives in the order given were: —, 0.37; 0.058, 0.067; 0.089, 0.082; 0.118, 0.138; and 0.408, 0.171. In solns. with additives the log I_0 vs. φ curves exhibited a bend at φ, below which there was an appreciable deviation of I obtained galvanometrically and by the vol. of O evolved. The presence of $H_2S_2O_8$ in all solns. with additives was detected analytically. Thus, even in dil. H_2SO_4 (0.5 molal), the reaction $2HSO_4^- - 2e = H_2S_2O_8$ took place (at φ = 2.05–2.35 v., H scale). However, at higher values of I depolarization occurred and the current efficiency of O evolution increased from 61.2 to 83.9% as I increased from 5.30 to 42.10 ma./sq. cm. The displacement of the rising part of the capacitance *C* of the double elec. layer vs. φ indicated that complete desorption did not occur (cf. *C.A.* 49, 11469*a*) and that the additives were adsorbed with their pos. ends toward the metal. The absence of peaks on the *C* vs. φ curves was attributed to the masking effect of H evolution. Both series of curves, log I_0 vs. φ and *C* vs. φ proved the postulate that O evolution was detd. by the rates of the reactions $H_2O - 2e \rightarrow O_{ads.} + 2H^+$ or $O_{ads.} + H_2O - 2e \rightarrow O_2 + 2H^+$ (ads. = additives). I. Bencowitz

ACC NR: AP7007622 SOURCE CODE: UR/0386/67/005/003/0077/0078

AUTHOR: Kurnosov, V. D.; Pleshkov, A. A.; Petrukhina, G. S.; Rivlin, L. A.; Trukhan, V. G.; Tsvetkov, V. V.

ORG: none

TITLE: Emission of a short single pulse by an injection semiconductor laser

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 5, no. 3, 1967, 77-78

TOPIC TAGS: gallium arsenide, laser r and d, laser emission, semiconductor laser, junction diode, laser modulation

ABSTRACT: This is a continuation of earlier work (Pis'ma ZhETF v. 4, 449, 1966) on spike production in a self-modulated GaAs laser, the results of which implied the feasibility of observing very short single light pulses from such a laser when excited by a much longer injection pulse. This possibility was tested in the present investigation using a GaAs diode with diffusion pn junction and a resonator produced by cleavage. An injection pulse of duration ~2 nsec was produced with a ferrite surge line. Streak photographs of the laser output, obtained with high-resolution equipment, showed distinctly that individual light pulses were produced, of approximate duration 2×10^{-10} sec, or about one-tenth the injection duration. Even shorter pulses could be obtained by varying the parameters and duration of the pulses. Orig. art. has: 1 figure. [02]

SUB CODE: 20/ SUBM DATE: 030ct66/ ORIG REF: 001/ ATD PRESS: 5117

Card 1/1 UDC: none

L 14628-66 FBD/EWT(1)/EWP(e)/EWT(m)/EEC(k)-2/T/EWP(k)/EWP(l)/EWA(h)
ACC NR: AP6002709 SCTB/IJP(c) SOURCE CODE: UR/0056/65/049/006/1718/1722
WG/WW/GG/WH

AUTHOR: Borodulin, V. I.; Yermakova, N. A.; Rivlin, L. A.; Tsyetkov, V. V.; Shil'dyayev, V. S.

ORG: none

TITLE: Nonlinear negative absorption of resonance light in ruby and neodymium glass

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 49, no. 6, 1965, 1718-1722

TOPIC TAGS: ruby laser, solid state laser, neodymium glass, laser pulsation, resonance absorption, light absorption

ABSTRACT: The purpose of the experiment was to obtain a quantitative comparison of the calculated drop in the negative light absorption induced in a laser by a resonance signal, and the experimental drop observed in ruby and neodymium glass. The materials tested were a ruby sample with 90° orientation, 0.05% Cr ions, and bleached end surfaces, and glass with about 4% neodymium ions. The pumping was done with high-intensity flash lamps in both cases, and the input and output light pulses were recorded with photocells and an oscilloscope.

Card 1/2

L 14628-66
ACC NR: AP6002709

The results show that propagation of a monopulse from a laser and the distortion of the pulse waveform during the propagation cause negative absorption of the resonance light in ruby single crystals as well as in neodymium glass, and the degree of nonlinearity of the negative absorption and the distortion of the pulse waveform can be readily determined from the deviation of the oscillogram from a straight line. The agreement between theory and experiment is regarded as satisfactory. "The authors are grateful to N. Al'tshil', Yu. Romanov, V. Trukhan, and A. Uits for participating in the experiment." Orig. art. has: 5 figures and 2 formulas. [02]

SUB CODE: 20/ SUBM DATE: 29Jun65/ ORIG REF: 004/ OTH REF: 005
ATD PRESS: 4198

Card 2/2

BORODULIN, V.I.; YERMAKOVA, N.A.; RIVLIN, L.A.; TSVETKOV, V.V.; SHIL'DYAYEV, V.S.

Nonlinear negative absorption of resonance light in ruby and neodymium glass. Zhur.eksp. i teor.fiz. 49 no.6:1718-1722 D '65. (MIRA 19:1)

1. Submitted June 29, 1965.

RIVLIN, L.A.

I-4

Category : USSR / Radio Physics. Generation and Conversion of Radio-Frequency Oscillations

Abs Jour : Ref Zhur - Fizika, No 3, 1957, No 7251

Author : Rivlin, L.A.
Title : Transverse Type of Interaction Between an Electron Beam and a High Frequency Field

Orig Pub : Tr. M-i, in-ta. M-vo radiotekhn prom-sti SSSR, 1956 vyp. 4 (53) 3-18

Abstract : The author considers the system in which the electron beam and the wave move perpendicular to each other and interact continuously during the entire period of oscillation, with the time of interaction of the individual electrons of the stream being small compared with this period. The analysis is carried out for a particular case of a self-excited generator. The electron beam (see diagram) formed by the gun ( ) is passed through two crossed waveguides 0 and 0 , 2xcited in the H_{01} mode. The electric field in the waveguides is directed perpendicular to the beam. If the phase shift of the oscillations in these waveguides is $\pi/2$ and the

- 11 -

Card : 1/3

Category : USSR / Radio Physics. Generation and Conversion of Radio-Frequency Oscillations I-4

Abs Jour : Ref Zhur - Fizika, No 3, 1957, No 7251

are derived for the conditions under which oscillations take place, and for the oscillation range. It is shown that such a generator is self-phasing. The useful power and efficiency of the self-oscillator is calculated under the assumption that the transit angle of the electrons in the gap of the resonator is small. According to calculation, with a beam current of 1ma the generated power is 4.3 mw. Certain structural features and variants of the system are analyzed. To eliminate the dependence of the beam deflection on the generated power, it is proposed to use cold secondary-emission cathodes, excited by the control beam, whose deflection can be varied. The position of the working beam is determined only by the dc potentials applied to the cathodes.

Card : 3/3

L 65258-65 EWT(m)/T/EWP(t)/EWP(b)/EWA(m)-2/EWA(c) JD
ACCESSION NR: AP5014232 UR/0386/65/001/003/0007/0011

AUTHOR: Rivlin, L. A. 44,55 19 44 05

TITLE: Hard Cerenkov radiation in a single crystal

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 1, no. 3, 1965, 7-11

TOPIC TAGS: Cerenkov radiation, x ray emission, single crystal, radiation spectrum

ABSTRACT: The author discusses the propagation of x-radiation in a single crystal. The classical condition for emission of Cerenkov radiation cannot be fulfilled in the x-ray range unless the properties of the medium can be described with the aid of a single macroscopic parameter--the index of refraction n. There are resonance modes for electromagnetic oscillations in the x-ray region propagated in a single crystal. These modes are represented by the points on the borders of the Brillouin zones where the frequency gradient along the wave vector vanishes. The hard Cerenkov radiation spectrum from a single crystal consists of lines which coincide with these resonance modes. Coherent electron bremsstrahlung is compared with this effect. The difference lies in the presence or absence of radiating charge accele-

Card 1/2

L 65258-65
ACCESSION NR: AP5014232

ration. "The author is sincerely grateful to M. F. Stel'makh for stimulating discussion and valuable counsel and to Yu. S. Korobochko for very useful consultation and for giving me the opportunity to become acquainted with his work (Yu. S. Korobochko, V. F. Kosmach, V. I. Mineyev, *ZhETF*, 48, 1248, 1965) in manuscript form.

ASSOCIATION: none

SUBMITTED: 18Mar65 ENCL: 00 SUB CODE: NP, SS

NO REF SOV: 003 OTHER: 003

Card 2/2

SOV/109-3-9-15/20

AUTHOR: Rivlin, L. A.

TITLE: Some Possible Applications of the Bi-Harmonic Operation of a Multi-Cavity Magnetron (O nekotorykh vozmozhnostyakh ispol'zovaniya bigarmonicheskogo rezhima mnogokamernogo magnetrona)

PERIODICAL: Radiotekhnika i elektronika, 1958, Vol 3, Nr 9, pp 1216-1218 (USSR)

ABSTRACT: The operation of a magnetron is described by the Hartree formula, as expressed by Eqs.(1) and (2), where U is the anode voltage, $\mathcal{V}$ is the magnetic induction, λ is the wavelength of the oscillations, d is the diameter of the anode aperture, σ is the ratio of the cathode to anode diameter and the parameter γ is expressed by Eq.(3), where $n = 0, 1, 2 \ldots$, while N is the number of the structural periods of the resonator system and k is the number of a spatial harmonic. By examining Eqs.(1), (2) and (3), it is seen that there are certain difficulties in obtaining the oscillations in the millimetre range by using a multi-cavity magnetron. It appears, however, that the following operation mode is possible. Assuming that the resonator produces wavelengths λ_1 and λ_2 which

Card 1/3 have mode numbers n_1 and n_2 and fulfil:

Some Possible Applications of the Bi-Harmonic Operation of a Multi-Cavity Magnetron

$$\gamma_1\lambda_1 \simeq \gamma_2\lambda_2 \quad , \qquad (4)$$

and that one of the modes does not feed into a load, the amplitude of this mode is very high. The resulting intense field produces a deep modulation of the electron beam which is necessary for sustaining of both the oscillations of the n_1 type as well as the n_2 type. Apart from Eq.(4), the system should also fulfil:

$$\gamma_2 = r\gamma_1; \; r = 1; \; 2; \; 3;... \qquad (5)$$

This condition ensures a correct azimuthal positioning of the "spokes", which are formed by the field of the n_1 type

Card 2/3

Some Possible Applications of the Bi-Harmonic Operation of a Multi-Cavity Magnetron

during the decelerating phase of the n_2 field. The field of the n_2 mode takes the high frequency energy from the electron beam and generates the wavelength λ_2 . The paper contains 2 Soviet references.

SUBMITTED: December 16, 1957.

L 42148-65 EEC-4/EEC(k)-2/EWT(d) Pg-4/Pl-4/Pn-4/Pt-7 WS-4
ACCESSION NR: AP5010098 UR/0109/65/010/004/0665/0672

32
B

AUTHOR: Rivlin, L. A.

TITLE: Negative resonance absorption of an electromagnetic signal by a medium having two pairs of equidistant levels

SOURCE: Radiotekhnika i elektronika, v. 10, no. 4, 1965, 665-672

TOPIC TAGS: negative absorption, resonance absorption, electromagnetic signal

ABSTRACT: Associated with the experimental works of P. P. Sorokin, et al., (IBMJ, Res. Dev., 1964, v. 8, no. 2, 182) and G. Bret, et al., (Appl. Phys. Letters, 1964, v. 4, no. 10, 175), this article proves theoretically that, in a medium having two pairs of equidistant levels, a negative absorption of a resonance quasimonochromatic signal, at a certain energy threshold, is possible; this makes the medium stable to small (subthreshold) signals, including noise. Formulas are derived describing this conditional stability. Another formula describes stability to the noise generated by the photons emitted during the spontaneous disintegration of excited states of the medium. When all the above conditions are met, the medium will

Card 1/2

L 42148-65
ACCESSION NR: AP5010098

exhibit absorption and will be initially stable to both unavoidable spontaneous noise and the subthreshold quasimonochromatic resonance signals. Orig. art. has: 3 figures and 39 formulas. [03]

ASSOCIATION: none

SUBMITTED: 25Feb64 ENCL: 00 SUB CODE: GP, EC

NO REF SOV: 002 OTHER: 002 ATD PRESS: 3239

Card 2/2 CC

AUTHOR: Rivlin, L.A. SOV/109-4-4-13/24

TITLE: Choice of the Optimum Parameters in Pulsed Power Magnetrons of the Millimetre Band (O vybore optimal'nykh parametrov moshchnykh impul'snykh magnetronov millimetrovogo diapazona)

PERIODICAL: Radiotekhnika i elektronika, 1959, Vol 4, Nr 4, pp 674 - 680 (USSR)

ABSTRACT: An attempt is made to analyse the factors which limit the pulse output power in millimetre magnetrons and to determine the relationship of these factors with each other. The analysis is carried out under the following simplifying assumptions: 1) the geometry of the resonant system of the magnetron is such that the oscillation modes are separated; it is, therefore, possible to investigate the phenomena taking place in the vicinity of one of the operating modes; 2) the magnetron is operated at a mark-to-space ratio such that the power dissipation at the electrodes is comparatively small; 3) the current load of the cathode can be characterised by a quantity j which is

Card1/5

Choice of the Optimum Parameters in Pulsed Power Magnetrons of the Millimetre Band

defined by: $j = I/S$ (1)

where I is the total pulse current of the magnetron and S is the area of the cathode; 4) the voltage conditions of the magnetron can be characterised by a quantity E which is defined by Eq (2), where U is the anode voltage, d is the diameter of the anode aperture and σ is the ratio of the cathode and anode diameters; 5) the relativistic effects are neglected. The useful pulse power of the magnetron is given by:

$$P = \eta_K \eta_e IU \quad (3)$$

where η_K is the efficiency of the circuit and η_e is the electronic efficiency. The pulse current of the magnetron is expressed by Eq (4), where α is the height of the interaction space, while the anode voltage is given by the parametric Hartree formula which is in the form of

Eq (5). The quantity F_1 in Eq (5) is a universal function of φ and is defined by Eq (6). The electronic efficiency is given by Eq (7). Consequently, the pulse power is expressed by Eq (8), where the function F_4 is defined by Eq (9). The function F_4 has a maximum at $\varphi = 0.75$, the value of the maximum being 0.385 (Figure 1). The maximum pulse power is therefore defined by Eq (10), where $\bar{j}$ and $\bar{U}$ denote the limiting values of current and voltage for a given magnetron. The electrical strength of the system can be taken into account if the pulse power is expressed in the form of Eq (12), where F_5 is defined by Eq (13). The function F_5 has a maximum at $\varphi = 0.96$, the value of the maximum being 0.074. Consequently, the maximum power can be expressed in the form of Eq (14), where $\bar{E}$ denotes the limiting value of the electric field.

Eqs (10) and (14) are represented graphically in Figure 2, which shows the dependence of the quantity A on the product $\gamma\lambda$; the quantity A is defined by Eq (16). It is seen that the limiting values of $\gamma\lambda$ divide the area of the figure into three regions. Large values of $\gamma\lambda$ correspond to the region where the pulse power is limited by the emissivity of the cathode and the permissible value of the anode voltage. The region of low $\gamma\lambda$ illustrates the limitations imposed by the cathode emission and by the electrical strength of the inter-electrode gap. The intermediate region is subject to current, voltage and electrical strength limitations. The author makes acknowledgment to Professor S.D. Gvozdover for discussing this work.

Choice of the Optimum Parameters in Pulsed Power Magnetrons of the Millimetre Band

There are 2 figures and 6 Soviet references.

SUBMITTED: December 16, 1957

Card 5/5